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THE LEAD BAN ACT OF 1990 AND THE LEAD EXPOSURE REDUCTION ACT OF 1990

HEARING

BEFORE THE

SUBCOMMITTEE ON
TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT,
RESEARCH AND DEVELOPMENT

OF THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

ON

S. 2593

A BILL TO REDUCE THE AMOUNT OF LEAD CONTAMINATION IN THE ENVIRONMENT

AND

S. 2637

A BILL TO AMEND THE TOXIC SUBSTANCES CONTROL ACT TO REDUCE THE LEVELS OF LEAD IN THE ENVIRONMENT, AND FOR OTHER PURPOSES

JUNE 27, 1990

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THE LEAD BAN ACT OF 1990 AND THE LEAD EXPOSURE REDUCTION ACT OF 1990

WEDNESDAY, JUNE 27, 1990

U.S. SENATE, COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS, SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT, RESEARCH AND DEVELOPMENT,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:34 a.m. in room 216, Hart Senate Office Building, Hon. Harry Reid (chairman of the subcommittee) presiding.

Present: Senators Reid, Lautenberg, and Lieberman.

OPENING STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Senator REID. The Subcommittee will come to order.

Ladies and gentlemen, the Subcommittee on Toxic Substances, Environmental Oversight, Research and Development will hear testimony on the Lead Exposure Reduction Act of 1990, known as S. 2637; and the Lead Ban Act of 1990, S. 2593.

It's a tragedy that these two bills had to be introduced in the first place or that this hearing now has to be held. If the EPA were doing its job administratively, some of the provisions of these two bills would be totally unnecessary. But even if the EPA suddenly showed more activity on this devastating problem, it still would be too little too late. Even without this hearing, our legislation has already jolted the lead industry into compiling its first inventory of all products that use lead.

These two bills have generated some powerful resistance among some of the users and producers of lead. Despite this well-managed opposition, however, the praise and scientific evidence in favor of the bills has been overwhelming.

Today we'll hear testimony praising the legislation pointing out that numerous substitutes already exist for lead. Mark that down. Numerous substitutes for lead already exist. Industries affected by this legislation do have options that will keep them in business, and in business at a profit.

The fact that this Subcommittee is seeking ways to reduce the danger of lead poisoning meets a price on people. Many people honestly believe that lead poisoning is not a problem in modern America. They believe that it's something out of the history books and nothing to worry about in modern days. But tragically this is not the case. Lead poisoning remains a major public health problem, despite some reduction of lead contamination in the environment.

On March 8, 1990, this Subcommittee held a hearing on the long term health effects of lead exposure. The testimony at that hearing was truly disturbing to anyone who cares about their children and the future. Several witnesses testified that children under the age of seven are the most likely victims of lead poisoning. According to one comprehensive study of the problem, some 3 million to 4 million of our children have levels of lead in their blood that may adversely affect their health. At exposure levels that are commonly experienced, the effects of lead on young children include permanent, significant neurologic impairment. In plain English, that's brain damage and life long nervous disorders.

One witness testified that one of the reasons that we have such a high drop-out rate in the United States is because of lead poisoning. That means lower IQ levels and behavior problems for many of our children. As a recent article in the Washington Post stated, elaborating on what I just said, what we have is "a national recipe for stupidity."

Although lead's adverse health effects are abundantly documented, the United States continues to use over 1.4 million tons of lead each year. But realistically, three quarters of that lead is used in storage batteries. The remainder is used in a large variety of products.

The manufacture, use, and disposal of these products means that more and more lead is being released into the environment. For many of these products, non-leaded substitutes are already available. To make matters worse, Government agencies are seriously behind in revising standards for occupational and environmental lead exposure. More resources are also needed to improve abatement methods and technologies to minimize exposure to lead.

Both the Lead Ban Act of 1990 and the Lead Exposure Reduction Act of 1990 address these concerns. The Lead Ban Act of 1990 would eliminate lead in our water supply, in product packaging, in food cans, cosmetics, and gasoline in urban areas. The act would also provide funds for research into methods of abating lead paint and requiring increased testing of lead in ceramic ware. Finally, the act would require EPA to develop a program for 100 percent recycling of lead storage batteries.

The Lead Exposure Reduction Act of 1990 would amend the Toxic Substances Control Act to reduce the use of lead products where substitutes are available. I feel that we're stressing this point. The act does not mandate a general ban on the use of lead. The act also requires lead storage batteries to be recycled, that leaded gasoline be sold only at a price equal to or greater than unleaded gasoline, and that all products containing lead bear a label indicating the presence and percentage of lead.

The Lead Exposure Reduction Act of 1990 would also set standards for air and drinking water for lead if EPA fails to meet specified deadlines for the revision of these standards. The Act also contains provisions encouraging greater research into both the extent of lead poisoning in the United States and the best means of abating lead paint.

What does all this really mean? Millions of new children will be poisoned by lead if this legislation is not approved. Millions of American kids—yours and mine, our grandchildren—will be forced to live with the possible consequences of brain damage and severe chronic nervous disorders if these bills are not approved.

Recently Americans have begun to question whether we are properly investing in our future. We talk about new technology, new economic competition, and new realities in military defense. The best computers and most expensive military hardware in the world won't save us from becoming a second-rate country if our children grow up brain damaged because of lead poisoning. That's the choice: do something now or suffer the consequences later.

We have, and will make part of the record, a letter signed by 29 different organizations that believe this legislation is appropriate and proper at this time. Just a few of these organizations are the Environmental Defense Fund, Advocates for Children and Youth, Alliance to End Childhood Lead Poisoning, American Academy of Pediatrics, Cambridge Lead Poisoning Group, Children's Defense Fund, Coalition for a Lead Free Environment, and 25 other organizations, all of which believe that something needs to be done about this national problem that we have.

[The letter referred to follows:]

June 18, 1990

Dear Senator:

The undersigned organizations strongly encourage you to co-sponsor S. 2637, "The Lead Exposure Reduction Act of 1990," recently introduced by Senator Reid with the co-sponsorship of Senators Lieberman, Bradley, and Moynihan, and S. 2593, "The Lead Ban Act of 1990," recently introduced by Senator Bradley with the co-sponsorship of Senators Reid and Lieberman. These measures take critical steps to help reduce the unacceptable prevalence of lead toxicity, an entirely preventable disease that causes permanent neurologic harm to children and impairs their ability to learn and to function as productive members of society.

As organizations that work on a wide range of issues affecting American society, including the environment, education, public health, and civil rights, we view lead toxicity as a severe threat to the well-being of the nation's children. Lead toxicity is the most common illness of environmental origin in American children today, with well over one-sixth of the nation's children affected. Although particularly prevalent among the urban poor, lead toxicity occurs throughout our society and across the nation.

Despite the grave and irreversible consequences of childhood lead exposure, millions of pounds of lead continue to be released into the environment each year through manufacture, use, and disposal of lead-containing products. This lead is added to the existing reservoir of millions of tons of lead that have already been dispersed into the environment by use of lead in paint, gasoline, plumbing materials, and many other products. And, because lead is an element, it can neither be degraded nor does its toxicity diminish with the passage of time. Thus, continued uses of lead serve to make a bad problem worse.

We applaud the inclusion in S. 2637 and S. 2593 of important provisions designed to curtail specified nonessential uses of lead that are particularly likely to contribute to human exposure. We also support the related provisions pertaining to continued research on lead exposure and abatement techniques, development of more stringent regulatory standards that reflect current scientific evidence on lead, and public education on the hazards of lead. While winning the battle against lead toxicity ultimately will require the removal of many existing sources of lead -- a matter to be addressed in subsequent legislation aimed at providing adequate resources for performing lead-abatement projects -- S. 2637 and S. 2593 take essential steps in ensuring that continued uses of lead do not further exacerbate society's severe lead-contamination problem. As such, these two measures deserve your enthusiatic co-sponsorship and vigorous support.

We look forward to continuing to work with you on this critical problem that so profoundly affects the future of our children and of our nation.

Sincerely,

Karen Florini

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Senator Reid. A large number of witnesses have agreed to give testimony on these two bills. I want to welcome each of you here today. But I think it's important to say that I don't know how the rest of the Congress is going to approach this. I hope that they feel the way that I do.

The Administration's testimony, coming in at the last minute, not allowing us an opportunity to prepare adequate questions, is something that I'm not going to allow to continue. If in the future this Subcommittee holds hearings and the Administration is late getting their testimony in, they can be late testifying in order to give my staff adequate time to prepare questions.

Today, we're going to go ahead and continue in the order on the witness list. But in the future, this Subcommittee is not going to wait until the last minute while the Office of Management and Budget does whatever it does with your testimony. I'm going to go ahead, and in the future the Administration witnesses can wait until the rest of the panels have testified. It's not fair to the Committee, and it's certainly not fair to the public when we don't have adequate time to prepare for the testimony. I, as well as my two colleagues here, think that that's part of the game being played, so that we don't have adequate time to prepare questions.

Typically, today you'll see that the Administration witnesses really like the testimony, but the Administration doesn't favor it because they're afraid that there might be some cost implications in the process. We get mixed signals from the Administration.

I'd like particularly to welcome my colleagues with me today on the panel, Senator Lautenberg and Senator Lieberman who have both been leaders in this area and in numerous other areas dealing with the health of the American public. We also are going to have, at a subsequent time, Senator Bradley who has worked on this legislation with us.

I would at this time ask Senator Lautenberg—if you have a statement, you are welcome to proceed.

OPENING STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Senator Lautenberg. Thank you very much, Mr. Chairman.

I want to commend you for your forceful statement on leadership as well as the eloquence of your comments in terms of the mission that we attempting to serve. I want to compliment you, Senator Lieberman, and Senator Bradley for the lead that you've taken in addressing the effects of lead on children's health and educational performance.

This Committee has led the fight against pollution. Nowhere is the fight more important than when it comes to the health and safety of our children. Often our kids are most susceptible and it's up to us to protect them by getting asbestos and radon out of their schools—we're moving out legislation on that—and by getting the lead out of their lives.

The facts are clear. Lead can make our kids sick, can deprive them of the full development of their minds, and when you think about it, what could be more horrible? You addressed that also, Mr. Chairman, in your comments.

Our children are our future, and too often, that future is being short-circuited with poison at unsafe levels of lead. We need to stop pumping new lead into our children's lives. The bills we're discussing today will accomplish that by reducing lead in products and packaging.

We also need to deal with all of the lead that's already out there in the environment in walls of homes and in the pipes that bring drinking water to families. We got the CDC to start helping States screen kids for lead, especially in the cities. We need to keep it up. We have to make our water pure and safe.

EPA estimates that lead in drinking water typically accounts for 20 percent of total exposure of lead in children. In the Subcommittee on Superfund, Ocean, and Water Protection, which I chair, we're going to have a renewal of the Safe Drinking Water Act. I intend to attack lead contamination in our drinking water.

I look forward to working with you and other members of this Subcommittee, Mr. Chairman, Senator Lieberman, and Senator Bradley, in reducing the exposure of lead to our children.

I remember the Sergeant's command when I was in the army. They used to say, "Get the lead out." And it was to protect our survivability. I hear families across this Country pleading with us to get the lead out.

I thank you very much, Mr. Chairman.

Senator REID. Senator Lieberman.

OPENING STATEMENT OF HON. JOSEPH I. LIEBERMAN, U.S. SENATOR FROM THE STATE OF CONNECTICUT

Senator LIEBERMAN. Thank you, Mr. Chairman.

I, too, would thank you for your leadership in this subject. I appreciate the opportunity to work with you, Senator Lautenberg, and Senator Bradley on what is a real problem that affects millions of kids in this country. We have the opportunity, through this Congress, to do something about it.

It has been several months, Mr. Chairman, since we held the hearings on the problem of lead poisoning. For me, they were a real eye-opener. I must say that in the time since then I've had the opportunity to discuss the problem of lead poisoning with many people here in Washington, D.C., at home in Connecticut, and I'm amazed and struck by how often I hear someone say, "Gee, I thought the lead poisoning problem was solved years ago."

I think that may be the assumption out there among the American people. But as we have learned, I think they will learn in the years ahead as the tests for blood lead levels become more demanding and science and medicine conclude—as it seems to me they are now—that even lower levels of blood lead content than before are dangerous, that this is a problem that was not solved, but desperately needs to be solved.

We are here today to discuss two bills that I believe can help dispel that perception that we've solved the problem and make a real dent in the continuing problem of lead poisoning in our society.

Dr. Vernon Houk, as the Assistant Surgeon General, has said, "Lead poisoning remains the most common environmental disease of young children in America." Dr. Houk characterizes the impact of lead poisoning as nothing less than devastating.

We need a new lead poisoning law because we need to get rid of the lead that is still in paint and still in the soil because lead in paint and in the soil continues to get into the blood streams of American children—thousands of them all across the land. It's making them sick, limiting their intelligence, and diminishing the quality of their entire lives. A young mind is a terrible thing to poison with lead. That is exactly what we're allowing to happen in this Country today.

We need a new lead poisoning law because we need to take a closer look at the amount of new lead that we're putting into our environment that may be creating possible new paths for lead to contaminate future generations of Americans. I think we need a new lead poisoning law because we simply must find out in the first instance how many of our kids across this Country have lead poisoning. The Lead Exposure Reduction Act of 1990 and the Lead Ban Act of 1990 are designed to begin the process of reducing our exposure to lead.

Our efforts to get a handle on the problem of lead poisoning have met with strong—and I guess I would say understandable—resistance from those who have come to rely on lead for their livelihoods and even for their hobbies.

We will hear from a whole range of opponents of these bills today. I think it's very important that we give them every opportunity to make this Committee aware of their concerns.

We're also going to hear from doctors and others who will testify to the importance of enacting these two bills. Among them will be Dr. Herbert Needleman who I consider to be a pioneer and perhaps a prophet in this area. He published a study last January in the New England Journal of Medicine which vividly illustrated the terrible effects of lead on our children throughout the course of their lives.

We're also pleased, as Chairman Reid indicated, to note that nearly 30 organizations have lent their support to this legislation. I very much appreciate that support. Together, these organizations represent millions of doctors, teachers, environmentalists, parents, and others who know that there is too much lead in the environment that our children live, learn, and play in. There is too little that's being done about it. The problem is not theoretical or speculative. It is a real problem and immediate.

I have here an article from the Observer Patriot, which is a small weekly paper in Putnam, Connecticut. This is an article of June 6, 1990, just a couple of weeks ago. It talks about children in North Grosvenordale, Connecticut—that's another very small town up in the Northeast part of my State—who got lead poisoning because of lead that had contaminated the soil near their homes. The article goes on to talk about a new discovery of lead with this telling line:

> We are beginning to learn that lead can be a problem in nicer places. This time, in the water supply of the Putnam Elementary Middle School, the amount of lead in the water is above the limits deemed acceptable in new Federal lead guidelines, yet because of the inadequacy of the law and the inability of officials to correct the

problem, the children are actually still drinking contaminated water from the fountains and eating foods that are cooked in contaminated water in the cafeteria.

So I hope that all of us today, as we discuss this problem—and there will be disagreements about the proposals that Senator Reid, Senator Lautenberg, Senator Bradley, and I are making—will keep the children of North Grosvenordale, Putnam, Connecticut, and all the kids of America in mind as we testify and discuss what we perceive to be the benefits and the shortcomings of the bills that we are considering today.

Thank you, Mr. Chairman.

Senator REID. Thank you Senator Lieberman.

A couple of housekeeping measures—the subcommittee is going to recess today shortly before noon and reconvene at 1:30. We hope to finish this before 4:00 this afternoon. We have a large number of witnesses. This was necessary because we wanted to make sure that we had a balance of those that oppose the legislation as well as those that were in favor of it. We have tried to do that. As a result of that, we have 20-plus witnesses.

The last housekeeping measure—Senator Bradley has indicated that he's been detained. When he comes in, we'll work him in as conveniently as possible. So that will probably come in during the testimony of Mr. Kimm and Doctor Houk.

So, Mr. Kimm and Doctor Houk, would you come forward, please, as the first panel?

Mr. Victor Kimm, Assistant Administrator of the Environmental Protection Agency, would you please proceed?

I would also indicate—I failed to do that as part of the housekeeping—that we have received most everyone's testimony prior to today. We will place your entire statements into the record, and ask that you condense your oral testimony to five minutes. As you're familiar with the little program here, the green light—the yellow light when there's a minute to go—and then the red light when your time is up.

Please proceed.

STATEMENT OF VICTOR KIMM, DEPUTY ASSISTANT ADMINISTRATOR, OFFICE OF PESTICIDES AND TOXIC SUBSTANCES, ENVIRONMENTAL PROTECTION AGENCY

Mr. KIMM. Thank you.

I'm pleased to be back here. I am Victor Kimm, the Deputy Assistant Administrator for the Office of Pesticides and Toxic Substances. I would try to very quickly summarize my testimony.

As I testified in March, EPA has long considered lead one of the Nation's most toxic multi-media contaminants.

Senator REID. Mr. Kimm, Senator Bradley has arrived and I hate to interrupt, but since you've just begun—Senator Bradley. Please take a seat at the table. Mr. Kimm, please stay there with Senator Bradley.

Senator Bradley, if you would—we just got started, so you're not late at all—if you would be kind enough to proceed. Your colleague Senator Lautenberg was here until just a minute ago. He gave a statement and asked me to make sure that you knew that he was here in support of this legislation.

Senator Bradley.

STATEMENT OF HON. BILL BRADLEY, U.S. SENATOR FROM THE STATE OF NEW JERSEY

Senator BRADLEY. Thank you very much, Mr. Chairman, for holding this hearing and allowing me to testify. The Committee has already documented in its March 8th hearing the risks of lead exposure. I think that hearing was really a ground-breaking effort. It's particularly important with regard to children. I think that most experts recognize the seriousness of lead exposure.

As you have stated, we're here today to examine some possible solutions involved in both S. 2593 and S. 2637.

As of today, our biggest single lead problem is still, in my view, a lack of knowledge about the problem. About a month ago, I visited an HMO in Paramus, New Jersey, where kids were being tested for lead. I talked to one boy whose father was the chief pediatrician there. I had sent a letter to all the pediatricians in the State about lead risks just a few weeks earlier, but it was only after receiving this letter that the boy's father, a pediatrician, a brilliant, dedicated doctor, had thought to have his own child tested. That's a lack of knowledge.

We have a long way to go when even our best educated health professionals don't always know that it's not just kids who eat flaking paint whose potential will be thwarted by the neurological effects of lead. But it is possibly their own children. It is not just kids who live in the cities, but it is kids in the suburbs as well.

Much as I want to heighten knowledge and public awareness, we need to remember that there are some things we don't know and probably can't know right away. Physicians are particularly sensitive about these limits. If the Centers for Disease Control cuts its guidelines for lead in the bloodstream from 25 micrograms per deciliter down to 10 or 15 micrograms per deciliter, then doctors tell me that they won't know what to suggest to parents whose children test higher than the revised levels of 10 to 15 micrograms per deciliter.

And the doctors have a good point. Should the parents who discover that their child has a higher than 10 or 15 micrograms per deciliter immediately sandblast off all the old paint in their home, risking even more exposure from all the fine lead dust? Should they move—sell their home and move? Should they look for other sources of lead? Should they just try to ignore the fact that they're in an environment where their kids are being exposed to unacceptably high levels of lead?

Because the answers to these problems are not easy is why we need a comprehensive, creative approach that will include basic research so that we can help doctors tell the parents something as to what they should do. We need remedies for the health problems and educational deficits of those already affected. Those who test to have lead in their blood—what do they do? And we need remedies for the environmental problem that lies beneath the public health problem.

In the bill that I've introduced, the Environmental Protection Agency would get $10 million a year for three years with a mandate to come up with strategies, particularly to reduce the risk of lead paint. Americans who are both parents and homeowners face enough burdens as it is without knowing how they can get rid of this health threat to their children. We can't ask them to have their kids tested, and to lose sleep over yet another chronic problem, unless we can also offer them some practical, real-life solutions to a real problem that is in their homes.

Mr. Chairman, there are plenty of things that we can find right now that reduce the number of children at risk and reduce the risks for all the children yet to be born. Some will cost a little money, but some are so inexpensive that it makes me wonder why we have to pass a law to get them done. The bills that are before the Committee today incorporate many new ideas, and I hope that they will also open the door to maybe some other imaginative solutions.

Let's just take one example. Lead pigments are still commonly used in packaging. One group in New Jersey, my State, tested a variety of soft plastic bread bags. They looked at only national brands that were sold in major grocery stores. Nearly 90 percent of these bread bags used lead pigments. A dilute acid, similar to vinegar, caused the lead to be dissolved. Unfortunately, a lot of people use these bags over again to store food in the refrigerator. People who try to act environmentally are inadvertently exposed to a health threat.

Mr. Chairman, there's no need for lead in packaging and there shouldn't be lead in packaging. It's as simple as that. Lead is still used in cosmetics. Don't ask me why, but it's still used in cosmetics. Lead is still used in a billion cans of food, even though there's no need for it. Many of the cans that contain lead are big institutional-size food containers—you know these big cans, the type that are intended for school cafeterias. The legislation will get those cans out of schools, and get the lead out of our children's food for good.

Some 300 million pounds of lead every year enter the environment from batteries, mostly car batteries. There's a whole industry in place to recycle these batteries, but 20 percent still seem to wind up in the trash heap somewhere. We need to create an incentive that gets that last 20 percent into the recycling stream. We need a program that will keep recycling batteries if the price of lead drops. Deposits and labels are great, but you need an aggressive program and public information. Anybody who comes to this Committee today and says that 80 percent recycling is enough, or 90 percent is enough, does not understand the health threat to children in this country.

My bill would allow States access to as much as $40 million in grants each year to close the door on illegal disposal, financed by a fee of up to five cents on every pound of lead used in a battery.

Now, Mr. Chairman, I doubt that anybody in this room can even remember going to the gas station and not asking for unleaded, but the fact is that leaded gasoline is still a major environmental hazard. A million and a half pounds of lead is still coming out of the tail pipes of vehicles each year. I hope that we can ban leaded gasoline in urban areas right away and nationwide within two years.

A creative, comprehensive solution on lead, in my view, needs to have three components: more public awareness—people and parents have to understand that this is a threat to the health of their children; no unnecessary additions of lead into the environment—why do you need lead in food cans that go to school cafeterias or in cosmetics; and testing and research to find better solutions to the environment and public health problems that we've inherited. In other words, when there's lead on the walls and you want to get rid of it without getting lead dust everywhere, how do you do it?

We have to do all three of these things, or it is likely that we will never reduce the levels of lead in our children's bloodstream below the levels we now know to be dangerous.

Mr. Chairman, in conclusion, let me just say that I think that our deepest obligations as legislators are to our children and to the natural world which is our legacy to them. Lead is not just any environmental problem. It is a pervasive poison that's specifically targeted at the growing minds of young children. Exposure to lead means a lifetime of being less than you can be. What we have to tell kids is, "At least you will start with your health, health that's not threatened by lead."

Thank you, Mr. Chairman.

Senator **REID**. Senator Bradley, we greatly appreciate your testimony. You are welcome to participate in the hearing in any way that you want, including sitting on the panel.

I think that your illustration of your doctor friend in Paramus, New Jersey, is totally illustrative of the problems that we have in this country with lead poisoning. If a prominent pediatrician who has children of his own doesn't test his children for lead poisoning, it indicates to me the total unawareness that there is in this country.

As I've sat through hours and hours of these hearings and read articles on lead poisoning, I am stricken with the fact that people know so little about the danger of lead poisoning. I will remember it, as I've indicated, as an illustrative indication on what we don't know in the country as the pediatrician in Paramus, New Jersey.

Senator **BRADLEY**. I thank you, Mr. Chairman, and I agree with you. The absence of knowledge is startling. I bet that if you ask the members of your staff who have children, when was the last time they had their child tested for lead in the blood, that you would be startled at how few, if any of them, had even done it one time. It's not normally associated with the kind of threat we face every day—or if it is considered at all, it's thought to be your poor urban kid who eats paint off the wall who's at risk.

The fact is that this is a pervasive problem. People who come in here and make excuses for why we can't do anything about cleaning up lead in our environment have got to tell you why there should be lead in cans. Why should there be lead in cosmetics? Why can't lead batteries be recycled at 100 percent?

I hope that you'll be able to pursue that with the witnesses because the burden of continuing this threat to the health of our children rests on those who are doing it and those who apologize for it. It's as simple as that.

I know your commitment and Senator Lieberman's, so I'll leave it in your hands.

Senator REID. One last point, Senator Bradley. You're absolutely right. I think that we visualize lead poisoning being somebody else's problem. It's the poor kid from the Ghetto—as you have indicated—eating paint off the walls. But in fact we have learned that that is not the case, even though those young people suffer more than their share.

But the problem is much broader. It extends to the urban professionals who are buying these old homes that they want to fix up. They decide they want to spend a little time on the weekend taking the paint off themselves, or they hire somebody to do it—these homes are 50 years old and the children are becoming sick as a result of their parents fixing up these homes.

It can be real close to home, as I indicated in testimony that I gave at a hearing. Until I held the hearings, I didn't realize that my own family was at risk. But, in fact, they are. We've had to look into that. But for this hearing, that's the only way that I had the public awareness.

I think the real estate industry, among others, has an obligation to tell somebody when they buy an old house that there could be lead poisoning and that they should be careful about it.

So we do have a tremendous burden here to make sure that people are treated fairly. But I think, as you have indicated, the burden has switched. When I used to try law suits, there would be a certain point in the presentation where the burden of proof would switch. I think the burden of proof has switched in this case to those who produce lead and use lead to justify why it's necessary.

Senator Lieberman, do you have any questions of Senator Bradley?

Senator LIEBERMAN. I do not, Mr. Chairman, just to thank Senator Bradley for his leadership in this and to say that with his support I believe we have a real good chance of finally passing a law in the Senate this year on this subject.

Senator BRADLEY. I thank both of you very much.

Now you can hear from the experts, who I'm sure will confirm the danger of lead to children in this Country.

Senator REID. Mr. Kimm, would you proceed, please?

STATEMENT OF VICTOR KIMM, DEPUTY ASSISTANT ADMINISTRATOR, OFFICE OF PESTICIDES AND TOXIC SUBSTANCES, ENVIRONMENTAL PROTECTION AGENCY—Continued

Mr. KIMM. Yes, sir.

I was going to begin with a little bit of context and maybe that will help because, as I started to say, we had covered this in March, the concern for lead goes back several decades. In fact, largely over the changes in phasing out leaded gasoline, we've effected a 90 percent reduction in urban air levels and have seen blood lead levels in children go down over this period of time. So there was some basis for people to feel that at least a portion of that problem was under control.

It is equally true that the new science that's coming forward is showing adverse effects at lower and lower levels, so we absolutely agree with you that there is a need to get on with reducing further exposure to lead. There is absolute agreement from the agency that it's a problem and that we need to get on with reducing levels.

From the information that we have, as I covered in March, we believe that the principal threat to children, as we understand the problem, is largely the lead left over from previous uses. We've divided that up into three areas: the lead paint in old buildings; lead in soils; and some continuing lead exposure associated with some drinking water systems where it's being leeched out of the systems. We've also tagged some areas in the immediate vicinity of secondary smelters that are exceeding emission levels.

Since our last meeting, we have—inside the agency—continued to press on trying to bring to closure a long regulatory process lowering the drinking standard which we hope to have out by the end of the year.

We have similarly put together a program of enhanced compliance to take a look at the primary and secondary smelters with the States and press vigorously for more rigorous controls. We've also increased our technical assistance with HUD which is—as Senator Bradley and other speakers mentioned this morning—we know that we have a lot of lead in old buildings. The question is how to safely deal with that. With the work that is underway, under the leadership of HUD in cooperation with us, CDC, and others, hopefully we will learn better ways of handling this problem.

Finally, we are continuing our investigations and researching into the significance of soil, which is not very well understood, as well as some means of abatement measure that we may take to stabilize soil under certain sets of circumstances where it is clearly contributing to exposure. You will remember at the last hearing that the Cincinnati Public Housing Authority officials described a program to go in and clean up a bunch of units, watched the blood lead levels of the children drop, and then came back later and found them back up where they had started from. On closer investigation, they discovered it was the contaminated soil in the area which had brought the children back to the same level of exposure. These are problems which we think need more attention in the future.

In addition, we, as I have characterized, we have moved forward on our strategy to get a comprehensive strategy for the agency to pull together the various programs that we manage and to strengthen our relationship with other agencies that are also trying to deal with the lead problems.

We've really divided that work up into two sets: one dealing with the controls of existing sources that I've touched on; and the other looking at pollution control activities and pollution prevention activities. Here we've divided that universe up into what can be done about high exposure products. These are talking about essentially the same list of products identified in the statute that you're talking about today.

We're also trying to take a hard look at ways in which we might prevent new products containing lead from entering the marketplace.

Finally, we need specific measures that may be appropriate for general reduction in ambient lead in our society through the encouragement of safe recycling—I stress the safe recycling.

In turning to the bills at hand, we fully endorse the goals and the basic premise that we need to move on. We also are very supportive of the specifics as it relates to paint which is fairly detailed and I think pretty much consistent with the efforts which we are presently doing.

However, the Administration doesn't support these particular bills at this time. The primary concern here is not that in the short run our problem is the lack of authority as we believe that our biggest problem in the short run is trying to figure out where the greatest risk reduction potential lie, and getting on with those tasks first.

To sum up then, we agree that lead is a problem, we applaud the interest of the Committee because without the interest of the Committee, we won't have the public attention and focus on this issue which it will take to move forward.

Finally, we would hope that we would be able to work with the Committee. I'm sure you'll have a lot of detailed questions for us. We would like to share with you the results of our analysis so that we can jointly identify what more needs to be done first, and then readdress the question of whether our current authorities are adequate or whether we do need additional authorities.

Thank you.

Senator REID. We will wait and ask you some questions when Doctor Houk finishes his testimony.

Doctor Houk is the Assistant Surgeon General and Director for the Center for Environmental Health and Injury Control, Centers for Disease Control.

Doctor Houk.

STATEMENT OF DR. VERNON HOUK, M.D., ASSISTANT SURGEON GENERAL, AND DIRECTOR, CENTER FOR ENVIRONMENTAL HEALTH AND INJURY CONTROL, CENTERS FOR DISEASE CONTROL

Dr. HOUK. Good morning, Mr. Chairman and members of the Subcommittee. I am Vernon Houk, as you've said, from the Centers for Disease Control. I am pleased to testify again before this Committee on behalf of the Department of Health and Human Services on the subject of lead poisoning prevention.

As I said in my testimony on March 8, lead poisoning remains the most common and societally devastating environmental disease of young children. The tragic consequences of this environmental disease on our children are all the more deplorable when one realizes that they are preventable.

HHS has a long history of lead poisoning prevention activities. I will not duplicate much of my testimony of the March 8 hearing. I would like to address the specific bills under consideration this morning.

HHS fully supports the intent of both S. 2637 and S. 2593 to prevent unacceptable exposure to lead by reducing the amount of lead in the environment. However, the Administration does not support S. 2637 or S. 2593. We, under existing authorities, are moving appropriately to reduce unacceptable exposure to lead. Additional legislation is not needed.

In addition, the bills propose authorities for EPA which would duplicate current activities of various agencies of HHS. In particular we note in S. 2637, the proposed sections 408 (a), (c), (d), (i), and (j) would duplicate activities CDC has conducted for years.

Lead abatement, including the removal of lead paint from homes and other structures like bridges and water towers, as well as lead contaminated soil removal, continues to be a hazardous occupation. In fact, lead abatement activities have been referred to as the "urban lead mine."

As the amount of lead removal from the environment increases, safety issues for the workers involved, and their families must be carefully considered. CDC's NIOSH is providing assistance in the development of worker safety guidelines for OSHA and HUD, and will continue to be available to them, the States, and others.

As I said during my previous testimony, how the removed lead is disposed of becomes critically important. When we remove lead from buildings, et cetera, we are in effect concentrating this hazardous substance while making it more available to children. Therefore agreed upon procedures for its safe disposal are critical to prevent widespread dispersal throughout the environment. Once lead has been dispersed in the environment, it is extremely difficult and costly to remove.

Accurate blood lead measurements are essential for lead poisoning prevention activities and the diagnosis and treatment of lead poisoning. CDC, recognizing the importance of laboratory performance, has administered a blood lead proficiency testing program since 1972, and is continuing and strengthening these efforts. Our work in evaluating and enhancing laboratory proficiency is also linked with the categorical lead screening grant program and with efforts to establish national surveillance for elevated blood lead levels contained in my full statement.

Continued responsibility for the blood lead proficiency testing program and enhancing laboratory blood lead testing capacity are high priorities at HHS and CDC, and will continue to remain so. This activity has had major success. The number of laboratories with demonstrated ability to measure blood lead has increased from three in 1972 to over several hundred today.

Similarly, HHS and CDC have considerable expertise in conducting epidemiologic studies of lead exposure, including studies relating sources of lead to blood lead levels. The strong relationship between CDC and State and local health departments, schools of public health, and lead screening programs have been extremely important in establishing collaborative efforts to conduct such studies. Our studies and expertise in this area have contributed to the understanding of the contributions of lead from soil, dust, paint, water, foods, and other sources to the problem of lead poisoning. Such studies remain an area of high priority with us and clearly belong in the Nation's health agency. In addition, they have been the basis of formulating specific intervention strategies.

The Lead Poisoning Prevention Grant Program authorized under Public Law 100-572, also requires us to educate the public about lead hazards. An integral part of this program is community outreach efforts and professional education. This authority too should remain with HHS.

The proposals for a restriction of lead continued in S. 2593 and S. 2637 also reduce the availability of lead to children and others. CDC supports this intent. However, many of the areas covered in S. 2593 are the responsibility of the HHS. CDC defers to EPA on the important issues of lead in batteries, restrictions on lead in other products, and the development of more efficient, cost effective, and safe methods for removing lead from the environment, as well as measuring lead in the environmental media. We object, however, to the provisions that would give to EPA activities conducted successfully by CDC for many years.

I am pleased to note this Subcommittee's concern about lead. I hope this will translate into support for our current approach and ongoing activities to improve the Nation's lead poisoning prevention efforts and to protect the health of the Nation's children, workers, and their families.

This concludes my testimony. I'll be happy to answer any questions.

Senator **Reid**. Thank you very much.

One of the things that we're trying to develop during this hearing process is to try to find out what lead products must remain. As I indicated in my opening statement, the legislation that I have introduced and that Senator Lieberman has introduced does not eliminate lead. I think we have a difficult job determining what products should remain. It's my understanding that the EPA has instructed various offices within the agency who deal with lead to develop a coordinated strategy to address the problem. Is that true, Mr. Kimm?

Mr. **Kimm**. Yes, Senator. That effort is ongoing, as I characterized briefly in my opening remarks.

Senator **Reid**. Do you think it would come to the point where you have somebody in charge that will be responsible for this coordination, rather than having it like it is now?

Mr. **Kimm**. It is clear that as we bring the plan together and move into operations, we will have to establish a lead for implementation. I think that we would probably do it inside the existing structure of the agency because the other alternative is too disruptive generally to work. That's consistent with matrix management that is done everywhere in the society.

But the point you're making is true. Once we have come up with a strategy and decided what needs to be done, some human being has to be responsible for making it happen.

Senator **Reid**. I understand that EPA is considering banning certain products which contain lead. Could you state at this time what those products are? If you are unable to do that, when do you think this final determination will be made?

Mr. **Kimm**. The schedule we are proceeding against will have the internal deliberations and analysis done this fall. I would assume that we would have, by the end of the year, the strategy put together.

At this point, as they've characterized the products, we've kind of divided them up into two groups: those for which they constitute high exposure and would be fairly high candidates for action; and the second one, trying to look at new products coming on and see if we couldn't interdict unnecessary new products. At this point we haven't made any final judgments.

To the first part of your initial statement, though, in foremost products there are substitutes, therefore change ought to be feasible. The batteries would be the big exception. We don't have technology that doesn't use lead that will produce a battery that will service the kinds of things that we use in our society.

In that case, our primary target is, as Senator Bradley suggested, enhancing and extending recycling.

Senator REID. One of the concerns that I have—we had this same problem when this Committee did some work on Alar on apples, grapes, and cherries. We also had the same problem when this Committee did some work on pesticides and fungicides on foods. This is that the EPA has taken so long to come up with standards in these respective areas.

TSCA has been in effect for many years. Why has it taken more than a decade for EPA to decide that it has the authority to restrict the use of lead?

Mr. KIMM. The description is accurate. We have not used these authorities in these ways before. I think we haven't really seen the needs that we presently see. I think we're seeing these needs because it is, as everyone else's perception, that the risks associated with lead is more serious than anyone thought previously. We once thought we had pretty well solved this problem.

Senator REID. That's a very candid answer and I appreciate it.

The last question is that in the Reno, Nevada area we've had considerable concern of high lead levels of drinking water at schools. Eight or nine schools have been identified has having too high lead levels in the drinking water. One of the real burdens that the Environmental Protection Agency has is with the Clean Water Act because I understand, from reading your testimony, that there have been thousands of inquiries made regarding that act and what's to be done with it.

You stated in your testimony in March that EPA was expected to publish a revised maximum contaminant level for lead in drinking water later this year. When do you expect to do that?

Mr. KIMM. Current schedule would have that in December, I believe. We are rigorously pursuing that. It has been the subject of a number of major meetings inside the agency. I think we have finally reached consensus and we're now looking to bring it to closure. I think that schedule is realistic.

Senator REID. I direct this question to you and/or Doctor Houk. That seems to be one of the real difficult problems we have with lead solder or fittings, with instruments that lead to the drinking fountain—a very difficult problem. Do you see any way of solving that?

Mr. KIMM. Part of the interest in school drinking water systems is an outreach program that the Drinking Water Program at EPA conducted. I think, again, that we're looking mostly at the legacy of past actions when people were not very careful about that kind of thing. I think with growing public attention and with some testing—testing lead in drinking water is very inexpensive—we should be able to find the hot spots and do something about them quickly.

Dr. HOUK. I think, Senator, the solution already exists, that is to prohibit lead solders and lead containing material in these particular products.

Senator REID. But what about what is already in place?

Dr. HOUK. What we would want to do with the current ones would be to replace them. I've seen full page advertisements in some places around the Country that when people get up in the morning or when they go to school, they should turn the faucets on for three or four minutes to flush them out. If you're in an area of the country that has a severe water shortage——

Senator REID. Like we have in Reno.

Dr. HOUK [continuing]. That may not be a very wise thing to do.

Senator REID. You just can't do that in Reno. We're in the fourth year of the drought, people can't flush their toilets and water their lawns like they want.

Dr. Houk, is lead paint only a problem in public housing?

Dr. HOUK. No.

Senator REID. Why do you say that?

Dr. HOUK. Lead paint is pervasively painted in at least 30 million houses in this Country. It was extensively used before 1950. The industry voluntarily reduced the lead content of paint at that time to 1 percent. In 1977 it was reduced to 0.06 percent by the Consumer Product Safety Commission for new paints manufactured, not for sale. You can still buy it. There are many houses in the private sector that are painted with extensive leaded paint and those also need to be dealt with appropriately.

Senator REID. Does the disposal of the debris resulting from lead paint abatement present a public health problem?

Dr. HOUK. Absolutely. I've stated in my testimony that what we're doing is concentrating the lead. We're going to have to have safe ways to dispose of it. It never seemed logical to me remove a substance that is hazardous and dispose of it as if it's non-hazardous.

In addition to that, like removing lead from bridges and from housing—as Mr. Kimm testified—this contaminates the soil around there and makes the lead available to the children which was not available before. These become very important issues. The paint on bridges should remain on bridges until we know how to remove it safely.

Senator REID. Senator Lieberman.

Senator LIEBERMAN. Thank you, Mr. Chairman.

Let me begin with a general question or a general reaction that troubles me. Both of you have indicated that you accept the seriousness of the problem and want to do something about it, yet you report that the Administration opposes both of these bills. I'm confused about why that's true.

Mr. Kimm.

Mr. KIMM. I think the Administration's concern is in three large bundles: one dealing with—if enacted as drafted, it would significantly shuffle responsibilities between and among agencies. That can be both disruptive and expensive. We have no expertise in how to run a blood bank. We would be happy to see CDC continue to do that. That's one set of problems.

Senator LIEBERMAN. The one fear is that the bill as we put it before you may end up giving you that kind of authority which you feel you're not prepared to handle?

Mr. KIMM. I think that we have more things to do than people to do them. I don't see any particular value. Again, I'm trying to characterize in a very general fashion the concerns on the Administration's side.

The second one is that for the vast array of things that were in the bills, which are the same things that we've been talking about, we think we have authorities to deal with them. We think we can get to the products under TSCA and other Federal authorities. We think we have a fairly neat vehicle for dealing with new products, which we have not exerted in the past. That's part of our thinking in why we want to go through this assessment to the various risk reduction potential associated with the different activities to try to figure out whether or not the statutes we have will do it, or whether we need new statutes.

Senator LIEBERMAN. I'd like to come back to that. I hear you on that.

Mr. KIMM. The third bundle of it kind of goes to—there's a tremendous number of things to be done in this bill with very, very, very short deadlines. I don't think we could manage those assignments in the short run without thoroughly disrupting the rest of the things we do in the agency.

Senator LIEBERMAN. That are not lead related, you mean?

Mr. KIMM. Yes.

Senator LIEBERMAN. Okay. I always have a feeling, when I ask these questions, that in a sense I'm speaking through you to that looming presence called OMB out there. I'd like to, in that sense, through you to OMB, suggest that at least on one and three—those are not fatal or irreconcilable differences—those are differences that perhaps could be negotiated as part of a consideration of this bill.

On the question of the authority, I must say that EPA has had the authority for a long time. I understand that you have a lot of demands on you. But little or nothing has really happened. I appreciate your declaration that the EPA is now working up a lead strategy, but I'd much rather see it in the law. I must say that this bill bans as much as possible—about 13 different uses of lead which we believe are dangerous.

If you believe you have authority to do it, how long would it take under an EPA rule-making to get to the point where you could eliminate some of these worst case uses of lead?

Mr. KIMM. Like a lot of other things in life, that's a trade off. If we were to do it under the existing authorities to rule-making, it would typically take us something like a year to propose a rule, take comments on it, deal with the comments, and deal with the disposing of a final decision at the other end. That's quick time.

Senator LIEBERMAN. A year would be short.

Mr. KIMM. And what you benefit from that is that the process provides everybody at interest an opportunity to contribute through the comment period to ensure that you don't inadvertently blunder into making some problem worse than better.

The kind of example that I have in mind is if we came up and tomorrow and said, "All batteries have to be recycled," and did not allow for some transition time. I think we would close down some of the secondary smelters that are out there, that are not able to comply with existing standards and have to go through an upgrading of technologies.

What we're looking for is the fine-tuning to make this workable, sir.

Senator LIEBERMAN. I understand what you're saying, I just would respond that the legislative process is open to those kinds of discussions as well. I expect that when we hear from representatives of the lead industry today, or those who are in particular fields that we've discovered have been using lead that we didn't know before, come before us, we're going to consider what the balance is and try to enact that ourselves.

So I hope before this is over because—just to come back to what everyone acknowledges, and certainly the two of you—that this is a pressing, pervasive, real public health problem that we ought not get into a bureaucratic tug of war or turf tug of war between the Administration and Congress over this. This is really one where there's such an over—I mean, my god, if the executive branch and Congress could agree that there may be a need for new taxes—— [Laughter.]

We certainly should be able to agree that there may be a need to get together and do something about the lead poisoning in kids.

Mr. KIMM. I shall be happy to carry those sentiments back through the institutional arrangements that you have described. [Laughter.]

Senator REID. We don't have that much time. [Laughter.]

Senator LIEBERMAN. Thank you. Good luck in your travels. [Laughter.]

Let me just come back to a couple of questions here, if I may. Dr. Houk, I want to focus on two parts of the problem that I think you have particular expertise in—outreach and testing. Give us a description of that because those are two aims of the bill that Senator Reid and I have put in. What's the current state of CDC outreach and education on the problem of lead poisoning?

Dr. HOUK. As you are aware, Senator, in 1972 a grant program was established under the Lead-based Paint Poisoning Prevention Act, which we administered through 1980. At that time the authority was transferred to a different part of HHS under a block grant. Last year legislation was passed and the authority is back in CDC. We expect to award the initial grants sometime before the end of the fiscal year to begin in between three and six States.

We have found—and everybody has found, sir—that when you seek out children for lead toxicity, you find three times as many children with lead toxicity as children who come to you. In other words, if you sit back and wait for them to come to your clinical services, you are not going to be able to do anything.

We worked very intently with EPSDT of HCFA, with the WIC Program—the Women and Infant Children's Program—any place we can to get children tested. But in addition to that, it is absolutely critical to go out into the neighborhoods and educate, and have a concern for the people in those neighborhoods, and seek them out for testing.

We would hope that the statement that we are redoing on lead—which should be available fairly shortly, I hope before the early fall—will be able to give advice to parents and to physicians about the concerns that Senator Bradley referred to in his testimony, how you deal with some of these things that we know how to deal with.

Senator LIEBERMAN. In this and the question of screening, I think we'd be helped if you—and I don't know if you're able to do it now—if you could provide some estimate of what you think it would cost to run an adequate outreach education program on the one hand and then to run a decent national lead poisoning testing program, on the other hand.

Dr. HOUK. It will cost $30 per child tested to do all the outreach activities, all of the screening activities, to ensure that the child receives medical care—but not to pay for the medical care—and to ensure that the child who is found to have lead toxicity has the environment inspected and the source or sources of the lead determined and removed.

Senator LIEBERMAN. In other words, $30 would take us through outreach education and testing and then getting those——

Dr. HOUK. And ensuring that something happens to them.

Senator LIEBERMAN. And what's the universe that we're talking about. In other words, what would be your aim? How many kids?

Dr. HOUK. There are approximately 15 million children in this population. There are about 3 million children who are at the highest risk. Depending on the amount of money that was available, one would take those children at the highest risk and deal with those situations first.

Senator LIEBERMAN. Are you doing anything now to encourage private pediatricians to begin to regularly test for lead poisoning?

Dr. HOUK. We have done so extensively in our lead statement in 1985. We made the bold statement that people thought we were a little bit loony for doing, that all children should be tested, particularly in private practice. The child is there. It is easy to test him or her. The test costs very little, is easy to do, and they should be tested. As you have said, in 1972 we thought this was a disease of primarily poor inner-city children in the Northeast. We now know it is a potential disease of all children in the United States. It is not a respector of race, affluence, or location. The only thing that determines whether the child is at risk of developing lead poisoning is the availability of lead in that child's environment.

Senator LIEBERMAN. I thank you both. Thank you, Mr. Chairman.

Senator REID. I would state that one of the tasks that I'm sure you have is to try to figure a way to bring down the costs of all the procedures about which you have mentioned. The $30 figure, with more work, might be able to be brought down to $15 or $20.

Dr. HOUK. It may be ultimately, However, initially as we lower the threshold [blood lead level] for lead, the cost is probably going to rise, Senator Reid, because we won't be able to use the hematoflurometer, which costs about 10 cents in consumable supplies, as the initial test, compared to blood lead which may be $20 or $30.

As part of our effort that is intently going on now, we are examining very carefully the cost benefit, the cost effectiveness, and trying to get other people where we can't do it to try to develop techniques to do the screening and to do things more cheaply and more effectively.

Probably the greatest impediment now is lead abatement. The cost of that is the greatest impediment to solving this problem in the next few years. However, I still think it can be solved and we are working with HUD, EPA, and a whole host of others to try to develop more efficient tools that also protect the safety of the worker and his family. We must always concern ourselves with the worker's family because the worker brings lead home in his hair, his clothes, et cetera, and that becomes a very critical issue to deal with.

Senator REID. Thank you very much.

The next panel of witnesses: Dr. Herbert L. Needleman, Chairman of the Alliance to End Childhood Lead Poisoning; Dr. Lynn Goldman, American Academy of Pediatrics; Ms. Audrey McMahon, Consortium for Citizens with Disabilities; Mr. Bob Chase, National Education Association; Dr. Edward Groth III from the Consumers Union; and Dr. Knut Ringen, Laborers' National Health and Safety Fund.

We'll hear first from Dr. Herbert Needleman.

STATEMENT OF DR. HERBERT L. NEEDLEMAN, M.D., CHAIRMAN, THE ALLIANCE TO END CHILDHOOD LEAD POISONING

Dr. NEEDLEMAN. Good morning, Mr. Chairman. I am Herbert L. Needleman, a professor of psychiatry and pediatrics at the University of Pittsburgh. I am also a member of the American Academy of Pediatrics Committee of Environmental Health and the Institute of Medicine of the National Academy of Sciences. Today I appear as Chairman of a new organization, one that was born since the last time that I appeared before this Committee, the Alliance to End Childhood Lead Poisoning.

This Committee was formed because a group of scientists and citizens wanted to respond to this lack of information about the seriousness of lead poisoning. We believe that this disease has terrible dimensions, but at the same time is completely preventable.

We no longer need vast amounts of research to answer the problem about the ignorance of pediatricians. That's a matter of education and technology transfer. That's one of our jobs. Another job will be to operate as a witness and critic outside of the Government. We will go to the appropriate agencies to do the job that we think they ought to be doing.

We think that lead poisoning, like smallpox, can be a disease of historical interest in 15 years. Mr. Chairman, 25 years ago, when the World Health Organization and Dr. Donald Henderson began to plan to eradicate small pox, they were greeted with a great deal of skepticism, including that from the executive director of WHO.

Now the plaque which is on the wall of Assistant Secretary James Mason's office celebrates the 10th anniversary of the last report of smallpox. The same thing can be true for lead. It's important, when you hear all the vacillations and reasons for temporizing, that you remember that this killer is no longer in existence.

The pioneers in the crusade against smallpox were treated with the same skepticism as the people who say that lead poisoning is serious and also completely preventable.

Let me congratulate this Committee for the pioneering steps you're taking to bring this disease under control. This is a marvelous beginning, but it is just a beginning. I'm sure that you will hear from others today reasons why this legislation is scientifically unsound, unnecessary, and even economically unwise. Perhaps my experience with these arguments will be of some use to you.

I entered this field a long time ago because at the time I was a pediatric house officer in Philadelphia. Lead poisoning seemed to be both important and completely tractable. Since it's a man-made disease, it should be man-controllable. After I studied the disease for a while, I began to wonder why, since we know where the poison is, we can measure it easily, we know what it does, and we know what to do to get rid of it, the disease still persists.

I found five reasons for this. In pursuing the important path you are embarked upon, I'd like to list these potholes you might encounter.

This first is that lead poisoning was considered to be a disease of poor minorities. And poor minorities don't have much muscle. Somehow this misrepresentation became changed into this argument, that it was a disease of bad mothering. If only the mothers took better care of their children there would be no lead poisoning. Once this conclusion was reached, there was little reason for any sense of urgency of responsibility. But the facts, as you know, are that all children in the infrastructure, white or black, rich or poor, are at risk for lead poisoning. Mr. Chairman, 17 percent of all American children have neurotoxic levels of lead in their blood.

Today Dr. Houk said that the Government position is to work to prevent children from unacceptable levels of lead. I think most of the scientists in this business now agree that there are no acceptable levels of lead. Having worked with Dr. Houk for 15 years in close quarters around a number of the issues—there's nobody more responsible for the improved situation with lead than Vernon Houk. I know that he feels that there is no acceptable amount of lead in a child's body.

The second reason is that many believe that when the lead paint legislation was passed and lead was reduced in gasoline the disease had disappeared. Many pediatric centers have stopped testing for lead and stopped teaching about it. Pediatric residents no longer know how to treat it and no longer think about it.

The third is that this is a low technology disease. This doesn't have the thrill of live transplants or gene switching.

The fourth is the sluggish response of some areas of the Government. HUD is egregious in this respect and the EPA shares some of this guilt also. To suggest that we have to continue to study the sources of lead before we can do anything effective in abatement is really a fatal paralysis.

Finally, the tireless work of the lead industry must be mentioned. They have worked ceaselessly to conceal, obscure, or minimize that lead is an ubiquitous silent toxin and that it does its damage at very low doses. You will hear some of that today.

This is not a new story. In 1922 lead paint was banned in Brisbane, Australia, and similar bans were imposed in Great Britain, Spain, Sweden, Belgium, Cuba, and Greece in the 1920s. It was 50 years later that legislation was passed in the United States Congress. That 50 year gap is no accident. It grew from industry's assiduous campaign to diminish awareness about the dangers to children from lead. It is hard for someone, like me, who has treated children with lead poisoning, who has followed and evaluated them, who knows that these children will never graduate from college, will probably never attend ordinary non-remedial classes, or make a good living to talk about this in unemotional terms.

In 1947 the Secretary of the Lead Industry Associates, the principal trade organization for lead users, gave an address to the Congress of industrial Health. Although this individual, Mr. Felix Wormser, was not a physician, he did not at all hesitate to state that most diagnoses of childhood lead poisoning were incorrect, and that childhood lead poisoning was a rare phenomenon. He was not inhibited by statements to the contrary from distinguished pediatricians like Randy Byers and Charles McKhan, but drew his support from lead industry supported academicians.

This practice has continued until today, with arguments virtually identical to those of 40 years ago, only the names of the players have changed. This Committee and the American public have every right to listen to these people today with the appropriate does of skepticism.

I once more congratulate you on this beginning. I think you have a great deal of work ahead of you. It's going to be very expensive work, and I offer the resource to the Committee of myself to your enterprise.

Thank you for this opportunity to testify before the Subcommittee today. I'll be glad to answer any questions you may have at the appropriate time.

Senator REID. Thank you, Dr. Needleman.

Dr. Goldman.

STATEMENT OF DR. LYNN R. GOLDMAN, M.D., AMERICAN ACADEMY OF PEDIATRICS

Dr. GOLDMAN. Good morning. I am Lynn Goldman, a member of the Committee on Environmental Hazards of the American Academy of Pediatrics and am here today on the Academy's behalf. I am also the State Environmental Epidemiologist for California and responsible for California's Childhood Lead Poisoning Program.

The Academy, whose 39,000 members are committed to the promotion of infant, child, and adolescent health, welcomes this opportunity to once again appear before this Subcommittee to discuss the impact of lead at low doses on the welfare of children, and to lend its support to the two bills, S. 2637 and S. 2593.

In today's remarks, I will make the following points: first, lead poisoning is one of the most serious environmental health problems for children in the United States today; second, lead poisoning is common; and third, lead poisoning is completely preventable.

When the Academy testified before this body last March, the toxicity of lead to children was reviewed in great detail. I'm not going to go back over that territory, but you should note two very important facts: one, lead is one of the best understood toxic substances and the only one with proven harm to significant numbers of children; and two, once deposited in the environment, lead does not break down and is not easily removed. Further delay in controlling lead exposures will only result in increased levels in the environment, increased numbers of children harmed, and eventually in increased expense to correct the problem.

I think there's a great concurrence of scientific opinion about the toxic effects of lead on children. Doctor Needleman who's here today has done a lot of the work in the field, but here I'll only say that the concurrence of expert opinion in several carefully designed studies that have been performed are adequate to prove in effect the consistency with the results of animal studies and has led to a consensus among scientists that the results are valid.

These studies do indicate a serious impact on society with increases in children with learning and behavior problems and with a drop in average IQ in exposed children.

The Agency for Toxic Substances and Disease Registry recently presented a report to Congress that estimated the full impact of this epidemic of childhood lead poisoning. Because there can be individual variability in both exposure and response to a toxin, and because there are variable levels of environmental contamination, it is usually considered to be a sound public health policy to set exposure limits to a toxic substance well below what is called the Lowest Observed Adverse Effect Level.

Based on recent studies, the ATSDR concluded that for lead, there is no toxicity at levels as low as 10 to 15 micrograms per deciliter, well below levels once considered safe. It is estimated that 400,000 children are born with blood lead at these levels each year and between 3 million and 4 million American children now have blood lead levels at or above that range.

Studies that I and my colleagues have performed in Oakland and Los Angeles, California have confirmed these estimates. We have found that between 15 percent and 20 percent of children have blood lead levels above 15 in neighborhoods in California. Lead is generally thought of as being just a problem of the east coast and inner city children. I think this is simply not true.

Lead is the only toxic substance to which we knowingly allow our children to be exposed above the lowest observed adverse effect level. Contrast this situation with the efforts that are made to eliminate exposure to other toxic substances. With lead, we have not only positive animal studies but also positive human epidemiological studies. Yet we continue to expose millions of children above the lowest observed adverse effect level. Not only that, but we also have no evidence for a level that is safe and no margin of safety for the current levels of exposure.

Lead poisoning is completely preventable. By the time a physician makes a diagnosis, it is too late to prevent the neurological consequences. And then later it is impossible to say whether the child's IQ was lowered by lead or whether a learning problem was caused by lead exposure. We've seen that higher social standing and income levels do not protect children from lead exposures, and pediatricians increasingly see middle class children with exposures to lead from refurbishment of older housing.

The most immediate prescription for the problem is to reduce the amount of lead contaminating food, water, air, and the environment of children. Every effort must be made to find acceptable replacements and substitutes. In many cases the replacements are readily available and inexpensive. The Lead Exposure Reduction and Lead Ban Acts of 1990, which would restrict the innumerable uses of lead that expose children, can effectively stop this wasteful and tragic epidemic. Such programs must be backed up with effective enforcement strategies because, unfortunately, voluntary efforts to reduce lead uses have not been forthcoming or effective.

An additional necessary remedy is the removal of lead from homes and play areas. The actions prescribed in the Lead Exposure Reduction Act, we think, are prudent, reasonable, and long overdue. Research has shown that abatement done incorrectly can create a more hazardous environment for children in the homes and for workers. So we do feel that guidelines and improved technology, as proposed by the bill, are very necessary.

A sustained and committed effort across Government agencies is needed, supported by research efforts, not only in the area of environmental cleanup but also in the area of screening for lead poisoning. As you've seen, the technologies that are available, are really not adequate.

Our children are an investment in the future. Increasingly our competitiveness in the world market requires that we maximize our intellectual resources. There is no way our medical and educational systems can address this issue without measures to prevent lead toxicity. We must provide for a cleanup of the lead that is already present and we must stop the introduction of lead sources into the environment.

As pediatricians, we urge that you take all the appropriate actions to cleanup the lead problem. These actions include: cleaning up the lead paint and lead dust in the home; removing the lead solder from house plumbing; removing the lead from the air the child is breathing; and assuring that lead is not present in the food or the pottery that the family is using.

We need your assistance. You are the only ones who can see that these changes occur.

Senator Reid. Thank you very much, Dr. Goldman.

Ms. Audrey McMahon.

STATEMENT OF AUDREY McMAHON, CONSORTIUM FOR CITIZENS WITH DISABILITIES

Ms. McMahon. Thank you, Senator Reid. It's an honor today to be here representing the Consortium for Citizens with Disabilities Prevention Task Force to endorse these bills.

The Consortium is a coalition of approximately 60 consumer, parent, professional, and advocacy organizations who actively work to promote the rights of, and ensure services for persons with disabilities. Our Prevention Task Force consists of groups such as my own, the Learning Disability Association of America, the Association for Retarded Citizens of the United States, the American Association of University Affiliated Programs for Persons with Developmental Disabilities, the Epilepsy Foundation of America, the National Head Injury Foundation, as well as others.

The Consortium is very pleased with your efforts, the efforts of Senator Bradley, and the efforts of Senator Lieberman to introduce legislation that has such potential for a very positive impact on the lives of many individuals. The prevention of disability is a major goal of all disability related organizations. This goal does not negatively reflect on those persons who have disabilities, but only strives to prevent future disability.

We are heartened to see, Senator Reid, that your and Senator Lautenberg's interest in the issue of lead include a concern for the presently greatly under-funded Lead Poisoning Prevention Program administered through the CDC. We are grateful for your letters to Senator Harkin, Chair of the Senate Appropriations Committee, requesting an appropriation to the full authorization level of $24 million for this critical program.

We all know that lead poisoning is a preventable and permanent case for morbidity, mental retardation, cognitive and behavioral problems, et cetera. Unfortunately, it has been an area of concern that has uniquely been neglected in an era that boasts many major achievements in "preventive medicine." In the light of the problems caused to all children who come into contact with lead, imagine the even more negative impact that it can have on a child who already has a disability for another reason. In this case, exposure to lead is an additional cause of disability, one more obstacle to normal development. We must make every effort to avoid that situation from a humane and also from an economic standpoint.

We have no data on the extent to which additive and possibly synergistic environmental insults contribute to the magnitude of disabilities in predisposed populations necessitating expensive increased remediation, rehabilitation, social security income, et cetera.

The numbers involved are enormous. Learning Disabilities, for instance, which is only one of 60 groups in this Consortium which I represent today, was described by the interagency Committee in their report to Congress on learning disabilities in 1987 as affecting up to 10 percent of all Americans. That translates perhaps up to 24 million persons with learning disabilities alone. We really need revised overall statistics on the economy of preventing early toxic insults.

The Agency for Toxic Substances and Disease Registry estimated that between 3 million and 4 million children in the United States, under the age of six, have blood levels above a level associated with the onset of early detectable adverse effects.

Senator Reid. What was that number?

Ms. McMahon. Between 3 million and 4 million, but wait a minute. As the standard goes up, now, where it's going to be 10 to 15 instead of 25 micrograms per deciliter, the number of children with excessive—what will then be considered excessive—blood lead levels will soar.

Dr. Baumister speaks of the new morbidity which involves environmental and socioeconomic variables that lead to the greater occurrence of mental retardation and other disabilities among the poor than among the rich. But we're all aware that not only inner city urban areas with chemical manufacturing, heavy industry, poor air, soil, water, and so forth, are affected. This is also a rural problem where a great many people live in abject poverty in old housing stock, often older than that found in urban areas. Programs to educate people about the issues of lead and provide them with lead abatement are often not available in rural areas.

As Senator Reid pointed out, middle class families turn to older housing. As that happens, lead will become more of a disabler of the young, regardless of income. Old houses have to be rehabilitated and this rehabilitation obviously can lead to problems.

Coordinated programs that use the expertise of governmental agencies are certainly required. However, it is important to ensure that these agencies, which purport to have experience, actually have accomplished something with the programs. For example, the Department of Housing and Urban Development has been concerned with the issue of the abatement of lead paint for almost 20 years. However, in our opinion, their true accomplishments may have been less than desirable.

The emphasis in S. 2637, the Lead Exposure Reduction Act of 1990, on coordinated efforts by a variety of governmental agencies is certainly essential. We feel that it is critical that one agency, possibly the Department of Health and Human Services, should be the overall control center for all abatement, reduction, and education efforts. The establishment of one or more Centers for the Prevention of Lead Poisoning at specific colleges or universities is a good idea. However, there should also be a Center for the Prevention of Lead Poisoning at the Federal level.

The Lead Poisoning Prevention Program at CDC, which I mentioned earlier, is an example of a critically important program that has not been adequately supported by the Congress and/or the Administration. The authorization level for this program for last year was $24 million, the appropriation received was for not quite $4 million. While this was quite good for a program that was identified as a new start, it is not enough to ensure an effective program. For this year, the Administration budget requested level funding for the program. To paraphrase Senator Lautenberg, earlier this morning he said, "What could be more horrible?"

In conclusion, the Consortium of Citizens with Disabilities is more than willing to carry your message to whomsoever we can in order to build support for a coordinated effort. The disability community is eager to assist in our mutual goal to end childhood lead poisoning. With your leadership, and advocacy from coalitions such as the Alliance to End Childhood Lead Poisoning and many others, it is doable.

Thank you.

Senator Reid. Thank you very much.

Mr. Bob Chase from the NEA.

STATEMENT OF BOB CHASE, VICE PRESIDENT, NATIONAL EDUCATION ASSOCIATION

Mr. CHASE. Thank you very much.

Senator REID. That isn't the National Endowment of the Arts either.

Mr. CHASE. No, it's not. [Laughter.]

Senator Reid and Senator Lieberman, it's my pleasure to share thoughts of this issue with you on behalf of the National Education Association.

The central message I want to convey to you today is this: unless we take comprehensive steps to element lead poisoning, we will not achieve the high standards of excellence embodied in the recently adopted goals for education, those adopted by the Administration and the Nation's governors.

Each year, as a result of lead contamination in drinking water, 29,000 children require medical treatment, 240,000 children experience some irreparable loss of intelligence, some 82,000 children risk diminished physical stature, and another 82,000 risk blood disease.

When one takes into account all sources of lead contamination—drinking water, peeling paint, dust and soil, smelters, and food—as was previously mentioned, an estimated 3 million to 4 million children under age six have dangerous blood lead levels. Indeed, the hazards of lead contamination begin before birth. Some 680,000 fetuses are at risk each year because of pregnant women's exposure to lead in drinking water.

Relatively low lead exposure levels contribute to decreased intelligence, short term memory loss, reading and spelling under achievement, impairment of visual-motor functioning, poor perceptual integration, poor classroom behavior, and impaired reaction time.

There has been a great deal of progress in controlling the sources of lead contamination by restricting the use of leaded gasoline, lead-based paint, and plumbing solder. Still, however, as has been previously said, much more needs to be done.

The Association strongly supports the Lead Exposure Reduction Act of 1990 and the Lead Ban Act of 1990. These companion bills would be a dramatic step forward in efforts to eliminate lead contamination nationwide.

These measures would ban lead in all paint, solder, plumbing fixtures, packaging materials, construction materials, pesticides, and fertilizers. In addition, they would require labeling of all products containing lead. And EPA would be required to appoint a coordinator for all lead poisoning prevention activities.

We strongly support the statutory requirement for a maximum contaminant level of 5 ppb in drinking water at the tap. This new level would conform with recommendations and comments we filed with EPA on October 17, 1988. LERA would also encourage States to report blood lead levels and study the feasibility of a national requirement for pre-school blood lead screening.

NEA recommends the inclusion of a number of improvements in the bills. Consideration of this legislation provides an opportunity to reauthorize and strengthen the Lead Contamination Control Act scheduled to expire at the end of fiscal year 1991. As part of this reauthorization, Congress should require testing of drinking water in all schools, and provide funding assistance to schools for such testing.

At present the Lead Contamination Control Act has no teeth. Without a requirement for testing, many schools do not see the need for action, regardless of how serious the threat might be. In addition, we recommend that a reauthorization of LCCA include a requirement for reporting of school test results and a yearly report by EPA to Congress on the progress schools are making in addressing this problem.

Also we recommend that the proposed legislation mandate an EPA study of the extent of lead paint and paint dust in schools and in day care centers. At least 15 percent of all school buildings were constructed before 1939, and another 31 percent were constructed before 1959. It is reasonable to conclude that many still contain lead based paint.

Finally, we recommend that the proposed education program regarding lead poisoning be expanded to include information about schools and day care facilities as well as homes.

Time is overdue for our Nation to end the scourge of lead poisoning. Enactment of the Lead Exposure Reduction Act of 1990 and the Lead Ban Act of 1990 will help establish a comprehensive framework to lessen the harmful effects of lead on the health and educational abilities of America's children. I, too, applaud you for your leadership in this area.

Senator Reid, you indicated in your opening remarks that children are our future. Obviously, I could not agree with you more. It's very dispiriting to hear previous people giving testimony and listen to how in fact previous pieces of legislation have been put into effect very slowly, if at all. I thank you for your leadership in this area and hope that you will be successful in making sure that your efforts are met and in fact that laws will be put into effect that will help secure the health and safety of our children.

Thank you very much.

Senator REID. Thank you, Mr. Chase.

Our next witness will be Dr. Edward Groth III from the Consumers Union.

STATEMENT OF DR. EDWARD GROTH III, ASSOCIATE TECHNICAL DIRECTOR, CONSUMERS UNION

Dr. GROTH. Thank you, Mr. Chairman.

I am Ned Groth, an Associate Technical Director of Consumers Union, which is the publisher of Consumer Reports magazine and the product testing organization located in Mount Vernon, New York. We've been in the business of consumer education about lead hazards for our entire 54 year history. In fact, our most recent issue, the June, 1990 issue, has an article about home test kits that can detect lead in paint and ceramics.

I brought with me the very first issue of Consumer Reports from May, 1936, and I'd like to take a little bit of my time to read a passage from that issue. It had a story about lead in evaporated milk.

It had another story about lead toys and the hazards they pose to children.

Senator **Reid**. That's in the first issue?

Dr. **Groth**. That's in the very first issue of May, 1936.

> The hazard is especially great because lead is a poison which accumulates in the body and can do great damage in amounts almost infinitesimally small. Some medical authorities believe that lead presents one of the gravest hazards of childhood, being responsible for many obscure ailments which can be diagnosed only with the greatest difficulty. Lead paint used on floors, porches, cribs, and other furniture sometimes causes acute lead poisoning of children. Practically everyone stores some lead in his body from the many foods which are contaminated in lead. The more that is stored up, the greater the hazard from any additional source of lead. The purchase of lead toys should therefore be scrupulously avoided.

Later on in the issue, we also urged avoiding lead-contaminated milk.

Senator **Reid**. I didn't want to do this, but let me interrupt. Dr. Needleman, I guess you would agree with that statement except for the fact that now, some 40 or 50 years later, it's easily detectable. That statement said that small amounts would be damaging, but that it was hard to detect. It's no longer hard to detect once it's in the body is it?

Dr. **Needleman**. If you test for it, you'll find it. That's exactly right.

Dr. **Groth**. Mr. Chairman, you anticipate my point.

The point of that quote is striking in two ways. First of all the broad outlines of the problem were clearly understood even 54 years ago. Second, the problem remains with us 54 years later. We have learned a lot more about it, but we haven't come close to solving it.

I'd like to spend some time looking at the broad issues. We have submitted detailed written testimony on some fine-tuning on the legislation which, like Dr. Needleman, I would praise as a major step forward, a significant beginning. I think it's important to see what is a safe level of lead exposure in perspective. You all know that 20 years ago, 40 micrograms per deciliter was considered a toxic level of lead in blood. Ten years or so ago it was down to 30, now it's down to 25, and soon it will be 10 to 15. At the same time, exposure has been reduced from an average blood lead level of, say, 15 to 20 micrograms 20 years ago to an average level today of five to seven micrograms per deciliter.

Those two trends are definitely linked. We can only tell that lead at lower levels is toxic because the average level is much lower, and now people who have a blood level of 10 have above-average levels, which therefore can show up as toxic.

If this legislation were passed and it somehow reduced the average blood lead level in Americans to two micrograms per deciliter, I'm sure that Doctor Needleman and his colleagues could demonstrate that four micrograms per deciliter is toxic.

There is no theoretical limit to this trend, because the natural background level of lead, the prehistoric level, is somewhere between 100- and 1,000-fold lower than the level that's in all of our bodies right now. We're that heavily polluted with lead.

Now the bills before us help to address that problem. The basic philosophy inherent in these bills is a coordinated attack on all sources of lead that can be controlled. There are many good steps in that direction in these bills.

One problem that I have with the legislation as proposed is that it focuses too much on research. Research is like chicken soup—it can't hurt, and it may help a little bit. But we won't find any magic bullets. There is not a lack of technical knowledge about what it takes to get lead paint off walls, for instance. It's a slow, labor-intensive, costly process. The main need for research that I see, which isn't spelled out, is to find out why in over 50 years of awareness of this problem, social barriers have kept us from solving it. What are those institutional barriers? How can they be broken down? What strategies and what programs will actually enable this society to make the commitment to solve this problem once and for all? We need to get the best economists, political scientists, and social architects in the country directing their minds to that problem.

The main policy need I believe is also not addressed in these two bills, and that is to deal with the problem of lead paint, lead in plumbing, and lead in soils. You don't need another study of the source contributions to find out that those are the three biggest sources and that they all have to be dealt with.

The question is, how do we afford it? How can we, as a society, find a way to spend that money and spend it effectively? We do need to make that commitment. As a contemporary of Senator Bradley's when he was at Princeton, and as someone familiar with this issue for many years, I'll use an idiom that Senator Bradley would appreciate. You don't get to the NCAA final four by shrinking from a challenge. You don't get to the NBA finals by saying, "Maybe next year." We have to get on with the task of solving the lead paint, lead in plumbing problems. We have to do it soon.

So please don't stop with these two bills. Consumers Union will be looking forward to working with you next year on what's been called "Phase Two," which is the commitment of resources that is really needed to solve these problems.

Thank you very much.

Senator REID. Thank you.

We appreciate everyone's patience. The last witness in this panel will be Dr. Ringen.

STATEMENT OF DR. KNUT RINGEN, DIRECTOR, LABORERS' UNION NATIONAL HEALTH AND SAFETY BOARD

Dr. RINGEN. Thank you very much, Senator Reid and Senator Lieberman.

My name is Knut Ringen, Director of the Laborers' National Health and Safety Fund, which is a joint organization of the Laborers' International Union of North America and its signatory contractors. I will simply summarize my testimony here. You have the full testimony that you can insert into the record.

We support fully the legislation before us here. I was dismayed, very frankly, and saddened, but not surprised to hear the Administration testify this morning. To hear Dr. Kimm say that we need further strategy development is of course nonsense. We've spent 20 years developing strategies. Or to hear Dr. Houk, as the mouthpiece of OMB, I suppose, say that existing legislation is adequate is also nonsense. We've had 20 years of inaction to show that the legislation is not adequate.

Lead poisoning affects two main groups: children we've heard a great deal about today, but equally important are the workers and their families that are exposed to lead and I will focus on them.

Those who work in smelter production and use of lead in the demolition or repair of lead-based structures, in recycling such as lead batteries. Our union's 500,000 members have the major responsibility for demolition, cleanup and abatement, and structural repair work in this Country.

The first point I want to make is essentially the same as Senator Bradley's. While we know a great deal about the health effects of lead, our members know very little about them. If you think a pediatrician knows little, think of how it is for a construction laborer and his family.

I cannot tell you how many thousands of workers have been fired because they were sick from exposure to lead on the job; how many families were uprooted and ruined as a result of this; how many children were contaminated in the home; but I can tell you that we hear about it every week and it's not getting any better.

We have in construction the added problem that we don't have occupational health protections. There is a standard issued by the Occupational Safety and Health Administration for lead, but construction is exempted from it. We know that we have lots of lead poisoning in construction and last fall we issued an alert to our members concerning lead poisoning that we'd like to insert into the record, if we may.

Senator REID. That will be the order.

[The alert referred to follows:]

The Laborers' National
Health and Safety Fund

905 16th Street N.W. Washington, D.C. 20006
(202) 737-8320

HEALTH
ALERT

LEAD POISONING

Construction laborers often work where bridges or other metal structures are sandblasted or torn down—or where buildings and other structures are renovated. In many cases, the paint on these structures contains lead.

The Hazards

When structures covered with lead paint are cut, sandblasted, sanded, heated or burned, lead is released into the air. (A recent U.S. government report found lead poisoning in five of nine construction workers using torches to cut up a bridge that was covered with lead paint.) Anyone near such work also is at risk.

Lead is very toxic if you breathe or swallow it. The first signs of poisoning are weakness, joint pain, weight loss, loss of sleep, low blood pressure, memory loss and stomach upset. Lead harms the gums, stomach, kidneys and blood. It can cause severe anemia or permanently damage the brain and nervous system.

What You Can Do

If you are stripping, sanding, heating, cutting or otherwise disturbing a painted surface—or near such work:

- Ask your contractor to tell you if the paint contains lead. The OSHA Hazard Communication Regulations say the contractor must let you know.

If the paint contains lead:

- Follow your contractor's special procedures for this work. Some states have special rules for work on lead-coated surfaces.
- Use wet methods (where possible) to keep the dust down.
- Use a correct respirator to protect your lungs. Cutting with torches or heating produces a fine lead fume. A dust respirator will NOT protect you from that. (The poisoned bridge workers were wearing dust respirators.) The contractor must provide the right respirator and train you to use it.
- Always wash your hands and face before smoking, eating or drinking. This is to prevent swallowing lead from your skin.

Health and Employment/Hand in Hand

Write us for more information.

Dr. Ringen. We clearly need to do much more and the legislation you have proposed is a step in that direction.

As we move towards lead abatement, and lead removal from the society, I believe the following issue is very critical. If the workers are not adequately trained, if the contractors are not certified and concientious, and if the Government is not vigilant in its enforcement, then this job will not be done adequately. As a result, the community will not be protected and the children will not be protected from further lead exposure. It's very simple. The protection of the general public starts with good work practices during abatement.

We have experience from asbestos abatement—and to some extent lead is like asbestos—and we see what happens when you have fly-by-night contractors hiring uneducated, uninformed, unsupervised, and untrained workers. When the Government doesn't make sure that the hazardous material is disposed of properly, we find it in the community, in the waste deposits, everywhere.

Our national training center, Senator Lieberman, located in Connecticut, has developed the only national labor-management training program in lead abatement. It's a 32-hour training program that's certified by the State of Massachusetts. That's now being made available to our 72 training centers across the Country. We believe that's the first step in the right direction for our members, but we need to do much more.

I would like to make a couple of specific comments with regard to your legislation. The first is that we believe there is still much that needs to be done with this legislation to strengthen worker training, contractor certification, and Government enforcement. We believe that a minimum 40-hour training program should be required and should be written into the legislation.

Second, we believe that the legislation should require OSHA to apply the existing health standard for lead to construction immediately, and that within one year it should issue a new standard that would reduce exposure levels by 50 percent, which would apply to construction, as well.

Finally, I'd like to turn to page nine of the testimony that you have before you and point out some institutional suggestions that we've made to clarify some of the responsibilities that exist. Let me first of all say that I believe HUD, in the 20 years that it has had responsibility for lead paint abatement, has been a total failure. Just this week we learned that HUD has embargoed the final guidelines it had issued for lead paint abatement. That issue of the Federal Register has been withdrawn.

So let me suggest that this issue be removed entirely from the responsiblity of HUD. Let me simply make the point that's on page nine in the testimony that the abatement program should be administered by EPA much like AHERA is administered for asbestos. I believe you have to authorize money for abatement in public housing, because I don't see any way to get around that.

We believe that worker training needs to be added and be administered with grants for training and so on. I can go through the list that you have here, but I think it's self-explanatory.

Let me conclude by saying that deleading the Nation is a massive undertaking and we need to proceed with adequate safeguards.

We have to do the job right, or the community won't be protected. We know how to do the job right, but you, with your legislation, have to guide the Nation in this regard.

Thank you very much for having us here.

Senator REID. We appreciate this panel's testimony. I wish the time were adequate that we could ask all the questions that we have to ask. We appreciate your time and patience.

Dr. Ringen, I would refer you to page 5 of the written testimony of Ms. McMahon where she said, "For this year, the Administration budget requested level funding for this program. Is this another example of a kinder, gentler nation?"

Dr. Goldman, would you indicate what your educational background is?

Dr. GOLDMAN. Yes. I'm a pediatrician, board certified in pediatrics, I have a masters in public health, and I studied epidemiology at Johns Hopkins University.

Senator REID. Do you work for the State of California?

Dr. GOLDMAN. Yes, I work for the State Health Department.

Senator REID. I thought your testimony was enlightening, being a Senator from the western part of the United States, in that the problem is all over the Country. As almost each panel member has stated, this is not a regional problem. This is a problem that we have nationwide. That's part of the educational process. Many of us in the West sit back and think it's someone else's problem, but it's our problem. It's not Connecticut's problem or Massachusetts' problem, it's a problem of all of us.

Dr. Needleman, would you agree with the headline in the Washington Post, which I quoted in my opening statement, describing our current policy on lead as "a national recipe for stupidity"?

Dr. NEEDLEMAN. Oh yes. I think that it is a major part of the decreased productivity and poor academic performance of many children in our schools.

Senator REID. And Mr. Chase, we stress things that need to be done with education. Some of them are new and unique—having kids that live in one neighborhood drive across town to go to another school—all kinds of unique things to try to improve the educational opportunities of children. But certainly by spending a few dollars on a yearly basis—and maybe it will become more than a few dollars—it would certainly allow children to reach their educational potential. Would it not, if they weren't lead poisoned?

Mr. CHASE. I think that's a very fair statement to make, Senator. I would just like to point out in that regard that with the innovative programs that are now catching hold in this country—thankfully so—in education, everyone clearly understands that in order for anyone to succeed, the needs of the child as far as health is concerned are absolutely crucial. As a matter of fact, the governors, the President, and the Administration clearly understood that when they adopted the goals. The first goal says that when youngsters are ready to attend school, they must be ready to learn, and without the health of the child being taken into consideration, that readiness level is just not possible.

Senator REID. As we learned when Senator Lieberman and I, principally, and others joined, we were serious about our concern about Alar on apples, cherries, grapes. The industry that had produced this for decades and decades thought it was business as usual and we weren't serious about it. As a result of our maintaining our vigilance, no longer do they use that product on crops grown in the United States.

We're just as serious about lead as we were about Alar. Being an old trial lawyer, I was stricken by your statement, Doctor Needleman, where you said, "Only the names of the players have changed. The Committee and the American public have every right to listen to these people today with the appropriate dose of skepticism."

We're going to be skeptical, but recognizing that the people who think we should continue using lead have a real strong burden. They're going to have to give us the reasons why there aren't alternatives available and why it's necessary that lead be used in the amount that it has been, namely 1.4 million tons this year.

So I appreciate that statement. We have to draw a line. If in fact there are necessary uses of lead, there's going to have to be a preponderence of evidence to show that that in fact is necessary.

Dr. Goldman, I appreciate the American Academy of Pediatrics being so vocal in the need to change the law as it relates to lead use today. I've been impressed with the Academy of Pediatrics. This is not meant as any criticism of the American Medical Association because they do many good things. But it is my understanding that the American Academy of Pediatrics has dropped out of the American Medical Association. Is that true?

Dr. GOLDMAN. I don't know.

Senator REID. I'm quite sure that's true.

Dr. GOLDMAN. I think that is true.

Senator REID. The reason being that they feel that our health care delivery system—I've met with people from the Academy—they feel that the present approach to health care delivery isn't working and there needs to be some changes made. I think part of their progressive thinking is having you here today to testify in regard to these bills.

Dr. Ringen, you are right. That's part of a fault of the Committee, but that's the reason we have hearings. The American worker has been lost in the process. We're talking about children—rightfully so—but the American worker, as you illustrated so clearly that if a pediatrician doesn't know the dangers of lead to his own children, think of the inadequacy of the ability of a laborer to determine what the problems are with the dangers of lead. So I appreciate your testimony.

Dr Groth, again, I don't know how we could more clearly illustrate—I'm sorry to use that word so many times—the problem that we have here today than you drawing from this May, 1936 publication where, again, only the names have been changed—and that's only a little bit. We appreciate the Consumers Union giving testimony here today. We have a lot more that we need your opinion on, we'll be in touch. Because of the mass of witnesses that we have here today, we're not going to be able to go into more detail than we just have done.

Senator Lieberman.

Senator LIEBERMAN. Thank you, Mr. Chairman.

Let me just echo your expression of gratitude to these witnesses. I think the cumulative effect of your testimony is very powerful and renews my own commitment, as I'm sure it does the Chairman's, to see that we do something in this area.

I would like to highlight two things that two of you have said. Mr. Chase, your statement that Americans will never achieve the education goals that the President and the governors have committed to if we don't deal with lead poisoning is a very powerful statement. I was thinking about the ads that are on television against drug abuse—don't fry your brain, and they show an egg being fried. The more I hear this testimony from those of you who have credibility here, it seems to me that lead poisoning is involuntarily and invisibly frying the brains of a lot of kids in this country who are never going to be able to reach their own educational potential and therefore never will be able to really contribute to our society and to our economy.

One of the statistics I also quote in another context about economic competitiveness globally is that in Japan 98 percent of the kids graduate from high school. Here in America that number is two-thirds. And in most of our cities it's 50 percent or less of the kids that graduate from high school.

The more I hear your testimony, the more I wonder—obviously it's not all lead poisoning, I'm not saying that—but some substantial proportion of it, I would conclude from what you have said, is because of lead poisoning.

Dr. Needleman, did you want to respond?

Dr. NEEDLEMAN. We did make an estimate of that prevalence in our Somerville/Chelsea study. The attributable risk for poor classroom behavior was 40 percent. In other words, 40 percent of the poor classroom behavior in Somerville and Chelsea could be attributed to lead in 1979.

Senator LIEBERMAN. That's jarring and just emphasizes the point. Maybe one of the ways that we have to pursue financial resources to get at this problem is to put it in the context of educational achievement and economic competitiveness, which I think are going to become our overriding goals in the years ahead nationally.

Dr. Goldman, the more I listen, the more startling news I hear. I may have missed it last time, but I heard you say that 400,000 babies are born every year with lead poisoning. Why is that? Where is it coming from? How have their mothers contracted that?

Dr. GOLDMAN. It's very tragic. When lead is ingested, much of the lead is stored in the bones. During pregnancy, bones turn over very rapidly to give calcium to the infant. Also lead has been released from the bones and is transferred to the fetus. We think that's the source of a lot of that. Of course there are some women who are exposed to lead at work. That's another possible source.

Senator LIEBERMAN. So these are women—all of you have pointed out before that lead poisoning is cumulative and it's not something that washes out of your system.

Dr. GOLDMAN. So as children, they themselves are exposed, throughout childhood, and then when they go on to have their own children, they pass it along to their infants.

Senator **Lieberman**. Because the physical trauma of pregnancy releases it?

Dr. **Goldman**. It's a biological phenomenon. There's a lot of bone turnover during pregnancy and it releases the lead from the bones.

Senator **Lieberman**. I would say that means that 400,000 kids are just starting out behind.

Let me get to one of the focuses of our bill. I'd like to elicit a response because we'll have another kind of response from the lead industry people and others who are going to be here.

This bill that Senator Reid and I have introduced turns a corner. It not only tries to get at how to deal with what everybody I think acknowledges are priority problems, in a sense "old lead." That means lead in paint, plumbing, and soil. But it adopts a policy that says that we ought to use as little lead as possible wherever we are using it. In fact, EPA ought to have the authority to review new products coming on the market that have lead to make sure that there's no other way to fulfill the purpose that the lead fulfills in that product.

I think the lead industry people are going to say to us that we're overreacting and that there's no proof, essentially, that lead in some of the other uses—toys, ceramics, packaging, construction—is really a health problem. What's your response to that? Are we overreacting? Should we focus on the old lead, or is this the right way to go?

Dr. **Needleman**. If lead were a new drug being introduced into the market, it would never get through the FDA at this point. If we hadn't used it until now and tried to introduce it into society, no way would it be able to pass safety requirements.

Senator **Lieberman**. What about some of the areas—we're worried about microdust from the paint, but if you tell me that there's lead in a construction material, do I really have something to worry about there? Common sense would say to a certain number of people, "This is encased, so it's not going to go out into the atmosphere the way lead does from paint."

Dr. **Groth**. Senator, to link two parts of your bill, I think the connection I would like to draw is that some uses of lead may be essential and tolerable because the lead is completely recyclable. But other uses which may have economic benefits but result in the lead being dispersed into the environment because the product is either thrown away or economically uncollectable are probably the ones that we need to focus on.

So that would be one way to distinguish between important uses that are continuing and possibly important, possibly trivial uses that should be phased out because they only end up contaminating and dispersing lead throughout the environment.

Senator **Lieberman**. Dr. Goldman.

Dr. **Goldman**. Everything that's built is some day torn down. Then that's where we often see the problem with construction materials in terms of workers becoming contaminated by the process of either cutting apart or tearing down these things, even large storage tanks, then bringing home dust and so forth on their clothing to children. We've seen plenty of cases of that.

Other products, small objects, are sometimes not used the way that they're intended to be used. Even things like leaded fishing weights, beebees, curtain weights, and so forth. Children can get hold of those things and ingest them. We've seen cases of severe lead poisoning from those kinds of exposures.

Senator LIEBERMAN. Dr. Ringen—I'm sorry Mr. Chase, go ahead.

Mr. CHASE. Senator Lieberman, just briefly also—you recall, I'm sure in my comments that I asked the consideration of the reauthorization of previous legislation and the improvements that we believe are necessary in that legislation. At the risk of beating a dead horse here, I would ask that when you make these kinds of considerations so that the legislation that is passed does in fact have some teeth in it to do all of the things that folks are talking about here.

We've seen examples of things not getting done because there isn't any mechanism in the bills to make sure that things are being done. We've seen the dragging of feet go on and on. We've also heard testmony earlier today about something going to happen in perhaps a year or two, something like that. Those kinds of opportunities missed are really rather intolerable. If that means to be specifically cautious about making sure that there's legislation information—whatever in the legislation asking for work to be done in new products introduced rather than just the old things. I think that's essential because I don't think we can leave it to anybody else to do it. It won't get done.

Senator LIEBERMAN. I appreciate that.

Dr. Ringen, I have one final question. Like the Chairman, I appreciate your focus on the workers. The testmony that you've indicated here today—all of you—that maybe there's no acceptable blood lead level, but at least now we're talking in the range of 10 to 15 micrograms per deciliter. OSHA, according to your testimony, still has a standard of 50 micrograms per deciliter. What's happening to try to alter that standard? It certainly sounds like we're exposing workers at an intolerable level.

Dr. RINGEN. Actually, the air levels are 50. The blood lead levels are more like 40, but they should be about half of what they are at that level, at this time, given what we know about the science of lead in the body.

I'd like to make one comment, if I can, that relates to the people that are going to come after us here. That has to do with what one might call economic blackmail or environmental blackmail—that is to say that we cannot do anything because it's too costly.

In the late 1970's in Kellogg, Idaho, there was a huge smelter. The owners of that smelter said to the population in that valley, "You can have your jobs, or you can have healthy children, but you can't have both in this valley." That's the kind of thing that workers get faced with all the time. Of course that's an impossible thing for an individual to answer. That's why we need legislation and legislators like yourself pushing for these things.

Senator LIEBERMAN. Thank you.

Thank you, Mr. Chairman.

Senator REID. Senator Lieberman, I would just stress the point that you made so well. For each child that we graduate from high school, we save lots of money. Any dollar we save in the criminal justice system or the welfare system is money in the bank for us. I think the Administration should go back and review their opposition to this legislation. You and I know that the opposition comes from the Office of Management and Budget. There's no secret about that. I wouldn't embarrass the two Administration witnesses and ask them that. But of course that's from where it comes.

I think we're being penny wise and pound foolish by some of these "Let's make sure this year's budget looks good," because in the long run it would make future budgets look real good if we would have full funding for the testing and things of that nature that is already in the law.

So we have to recognize that the little bit of money that would be spent now on what we want done, would in the long run save this country untold amounts of money.

Thank you very much, each of you.

The final panel of witnesses this morning will be Mr. Jeff Zelms, President of the Lead Industries Association; Mr. Robert J. Murth of ASARCO; and Dr. L.D. McMullen, Association of Metropolitan Water Agencies.

Gentlemen, we appreciate your patience. We would first call upon Mr. Zelms to summarize his testimony. As we've indicated to all the other witnesses, the entire statement that you have prepared will be made part of the record. If you could summarize within five minutes, as the other witnesses have tried to do, that would be appreciated.

STATEMENT OF JEFFREY ZELMS, PRESIDENT, LEAD INDUSTRIES ASSOCIATION

Mr. ZELMS. Thank you, Mr. Chairman.

I am Jeffrey L. Zelms, President of the Doe Run Company, one of North America's lead producers; and I also function as Chairman of the Lead Industries Association.

I appreciate the opportunity to appear before the Subcommittee. When I last appeared on March 8, the Subcommittee focused on the the exposure from lead paint. I indicated we shared your concerns about past uses of lead and expressed our desire to work with the Subcommittee to help solve these old use problems and other lead exposure concerns. Since March 8, as you know, we have continued dialogue with you, your staff, and the agencies.

S. 2637 goes well beyond the issues discussed on March 8. It does not distinguish between old uses of lead—such as consumer paints, uses which have been discontinued—and today's products. The bill would significantly curtail, if not eliminate, many beneficial and essential uses of lead. Beyond that, it would virtually eliminate any and all new uses of lead.

LIA would like to support legislation, but we cannot endorse S. 2637 for the following reasons. The bill would restrict current uses of lead that are socially and economically beneficial without requiring a showing of the need for restriction. It would effectively ban new uses of lead and therefore stifle research and development, potentially reducing this Nation's competitive ability. It ignores measures that have already been taken and those that are now underway to further reduce lead exposures. S. 2637 would prejudge many of the issues that the EPA is investigating and will be acting upon, without the benefit of the substantive analysis that the agency is mandate to perform.

There are provision in both S. 2637 and S. 2593 that the LIA does support. For example, we support the battery recycling provisions of S. 2637. And we support the research and study provision of S. 2637. In other areas: we support the EPA regulations reducing corrosivity of drinking water supplies to reduce the lead content. We support the review of existing lead uses that are already underway at the EPA. We endorse a procedure for notifying EPA of new uses with the potential for significant health exposure so that the EPA can determine whether further regulatory actions under TSCA are required. We support enhanced blood lead screening programs and emergency response programs for children with unacceptably high blood lead levels. We endorse an industry-wide new product review program designed to help minimize potential lead exposure.

Senator Bradley's bill takes a more cautious approach in many respects. We support many of the studies and investigative provisions of S. 2593, but believe these and other provisions are not necessary in view of the current EPA lead review.

We are greatly troubled by the provisions of S. 2593 that would ban lead in packaging products. This provision seems to be based on a concern that lead packaging materials present environmental hazards when included in the municipal solid waste stream. As detailed in my written testimony, recent studies contradict this concern.

Lead is an important component of the United States economy. The economic contribution from the basic mining, milling, and refining of lead approaches $1.1 billion annually. The many uses of lead in ceramics, electronics, and industrial fabrication contribute even more significantly to our economy.

Our industry has experienced significant changes in the last 10 years. The uses today reflect changing environmental attitudes and changes in our economic and industrial base. The old uses of lead have been replaced by new, safe applications in high technology, radiation screening, lighting, energy conservation, and even pollution control.

Because of its use in many electronic and computer products, lead is an essential part of our military weapons, detection, and communications systems. Lead is critical for radiation shielding for use in nuclear systems and hospitals for x-ray systems.

Let me now turn to the issue of blood lead levels. LIA has obtained blood lead data for children living near four United States smelters and one Canadian smelter. All are below the 15 micrograms per deciliter goal set by the EPA in 1978, and our contractor suggests to us that these decreases will continue.

Blood lead levels around my company's Herculaneum smelter have been reduced from 20 micrograms per deciliter in 1975 to 14 micrograms per deciliter in 1984. As to 1990, the projected mean blood lead level for children under seven is 9.9 micrograms per deciliter. This projection is based on EPA's model. Further, secotrial random samples would indicate a number closer to 8 micrograms per deciliter.

Other smelters measured were lower yet. For example, measurements taken in the spring by Revere Smelting and Refining in

Wallkill, New York demonstrated an average mean blood lead level of 4.69 micrograms per deciliter. State data indicated 6.8 micrograms per deciliter and no child exceeded 9 micrograms per deciliter.

The reduction in the ambient air quality standard to 0.5 micrograms per cubic meter that is mandated by S. 2637 is not necessary. EPA studies show that such a reduction would reduce the mean blood lead levels of children living near lead emitting sources by a fraction of 1 microgram per deciliter. EPA's Clean Air Science Advisory Committee agrees that it is unclear whether reducing the standard would have a beneficial benefit.

In conclusion, Mr. Chairman, the Lead Industries Association supports certain sections of S. 2637 and S. 2593, but we oppose the specifics that I have stated. Despite our opposition, LIA and my company remain committed to working with you and others to develop a fair and workable bill.

We appreciate your time.

Senator REID. I appreciate the length you've gone through to prepare your testimony, especially the letter of June 7, which responded to specific questions that I had. (See p. 185.)

Mr. ZELMS. Thank you.

Senator REID. Mr. Muth.

STATEMENT OF ROBERT J. MUTH, VICE PRESIDENT, ASARCO, INC.

Mr. MUTH. Mr. Chairman and Senator Lieberman, my name is Bob Muth, vice president of ASARCO Incorporated. ASARCO is a U.S. based international mining company. We mine and refine metals and minerals including lead here in the United States and overseas.

I want to thank you particularly, Mr. Chairman, for the opportunity to once again testify. In my last appearance I was struck by the evenhanded conduct of the proceedings, and I assure you that our company is committed to dealing constructively with the Committee and with the issues raised by these bills.

There are important aspects of the Reid/Lieberman Bill that we unreservedly support. We support the recycling provisions of the bill, and we certainly welcome the increased congressional concern in addressing the issues of deteriorating lead-pigmented paint. These issues, Mr. Chairman, have been of concern to the industry and to public health professionals for decades. If there were easy answers, they would have been implemented long ago.

Perhaps by introducing EPA into the process, new insights will emerge and new solutions will be found. We are working with the agency toward those goals.

Having said that, Mr. Chairman, I am obligated to say that there are parts of the bill which cause us great concern. I think it is my obligation to state those concerns as clearly and as quickly as I can.

First of all, we believe that S. 2637 would seriously stifle technological innovation. That is not your intent, but surely it would be the effect of the bill. The history of lead, as with many industrial materials, is one of ever-changing uses in response to the needs of advancing technology. From one generation to the next, the major uses of lead change dramatically. That has been true in the past, it will surely be true in the future, but very likely at a much more rapid rate of change.

This bill, however, as we understand it, would essentially ban any and all future lead products, regardless of the availability of substitutes, if the product would at any time, and in any degree, contribute to any dispersion of lead into the environment, no matter how harmless or minimal such dispersion might be. This provision would needlessly destroy the incentive for research and development in the United States on any number of innovative products, many of them now under development here and abroad, and would force United States industry and consumers to settle for second best materials in those cases where lead could do the job better.

I suggest to you, Mr. Chairman, that this approach to public policy sets an extraordinarily dangerous precedent. If such a policy were extended to other potentially hazardous industrial materials, it could only seriously hinder U.S. competitiveness while at the same time deny U.S. consumers the benefits of safe and useful products.

Second, sir, both your bill and Senator Bradley's bill may have the unintended effect of resulting in greater threats to human health and the environment. S. 2637, as I said, effectively bans many as yet unidentified new lead products and does so without even permitting consideration of the health and the environmental risks posed by substitutes, or the health and environmental benefits of the product being banned.

Earlier, Senator Lieberman, you suggested that this bill would require a closer look at new lead products. I would like to suggest, in all seriousness, that what this bill calls for is a much more cursory examination than would be the case under TSCA today. TSCA says, "Look at the health and environmental benefits of the product in question. Look at the health and environmental risks of the substitutes. Look at the least burdensome way of regulating. Look at the extent of risk."

I'm afraid what this bill says, as we understand it, is, "Look at none of those things, simply look to see if there's any dispersion. If you find dispersion, it's out."

Third, Mr. Chairman, we believe these bills are premised in part on a misperception that there is extensive exposure to unacceptable levels of lead in the environment as a result of lead-containing products being disposed of in municipal solid waste. It is true that some environmental groups have expressed concern over the presence of metals in municipal waste and incinerator ash. As the result of a concerted campaign by one group, many people now assume a problem must exist.

Nevertheless, the most recent data from several independent studies indicate that lead-bearing municipal solid waste can be safely disposed in landfills or incinerated. With your permission, Mr. Chairman, I would like to submit copies of these studies for the record.

Senator REID. That will be the order.[1]

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[1] The material referred to has been retained in committee files.

Mr. MUTH. Thank you, sir.

In summary, S. 2637 and S. 2593, we believe, place far too much emphasis—and I must say in our view a misguided emphasis—on establishing impossibly difficult standards for new lead-containing products in the future. And at the same time, there are additional things that might have been done that were not done in order to effectively address what is today a more pressing need, the need for a coherent national policy on abatement of risks associated with deteriorating lead-pigmented paint.

If I might just take half a minute to end on a positive note, we would support—our company would support—an even more comprehensive approach to addressing the deteriorating paint problems, particularly in the areas of community blood lead screening and educational programs. We are willing to consider new restrictions on some existing uses of lead, where those restrictions are supported by an adequate record. We would support enhanced scrutiny of new products under appropriate criteria.

Our livelihood depends on the future safe use of our material and we are eager, sir, to work with you and with EPA to see that in fact the material is safely used.

Thank you very much.

Senator REID. Thank you.

Dr. McMullen.

STATEMENT OF DR. L.D. McMULLEN, CHAIRMAN, LEGISLATIVE COMMITTEE, ASSOCIATION OF METROPOLITAN WATER AGENCIES

Dr. MCMULLEN. Thank you, Mr. Chairman.

I am Dr. L.D. McMullen and I serve as General Manager of the Des Moines Water Works in Des Moines, Iowa. I also serve as Chair of the Association of Metropolitan Water Agencies' Legislative Committee, and I am here today to speak on the Association's behalf.

The Association of Metropolitan Water Agencies [AMWA], is a non-profit organization comprised of the directors and managers of the Nation's large municipal water supply systems. We are the people that are seeing the impact of the use of lead in water supply systems.

While we support many of the sections of the bills that you're hearing testimony on today, we do have a technical problem with section 5 of S. 2637. The Lead Exposure Reduction Act of 1990 provides that if within one year of the enactment of this bill into law, EPA has not set a standard for lead at the end user's tap, the standard will be promulgated to be 5 micrograms per liter.

Our members supply water to their customers at a point of delivery which is generally a plumbing connection outside the private home, multi-family residence, commercial, or industrial facility. We control the treatment and distribution facilities up to that point of delivery and we are committed to doing everything possible to ensure the safety of the water we deliver to that point. For that reason, we have supported a more stringent maximum contaminant level at the point of delivery.

However, it is our position, Mr. Chairman, that a standard at the end user's tap—if defined such as the tap at your kitchen sink—places water utilities in a position of being legally responsible for plumbing and fixtures that we simply do not own or control. Even more important, we believe a standard at the tap for lead is not the most effective means of reducing lead in drinking water, gives the homeowner a false sense of security—that is that the water utility will take care of the problem—and is not the most effective way to protect human health.

AMWA supports now, as we have always supported, regulation of lead in drinking water. In demonstration of this support, we have worked with the Environmental Protection Agency and members of Congress to support tighter requirements for lead in drinking water. We have also urged EPA to finalize the revised national primary drinking water regulation for lead by the currently targeted December, 1990 deadline.

AMWA has also developed a draft legislative plan, which we have shared with your staff, and we believe sets forth a program for the control of lead in drinking water that would prove effective in the protection of human health, would educate the public about the risks of exposure to lead, and how to reduce those risks in addition to being workable for water supply utilities.

This plan supports an MCL for lead effective at representative points in the distribution system, sampling in homes for diagnostic purposes so that individual homeowners can be made aware of the lead being contributed to their drinking water by their plumbing, corrosion control studies when a specific percentage of the home tap samples exceed a related level, and public education programs. AMWA also supports a ban on home plumbing fixtures that contribute lead to drinking water and strict enforcement of the Safe Drinking Water Act ban on lead pipes, solder, and flux.

Research conducted on the causes of lead in drinking water for the Des Moines area since 1987, by the Des Moines Water Works, verifies our concerns regarding the contaminant contribution of plumbing fixtures. Initial research indicated the cause of lead contamination was directly associated with age of property, in that newly constructed properties tended to show higher concentrations of lead in the drinking water delivered through the tap. However, further research showed that the primary source of contamination was often the plumbing fixtures themselves. This conclusion was formed when comparing results of 100 milliliter samples which showed concentrations in the range of 20 micrograms per liter on first draw to those of one liter first draw samples whose concentrations were in the range of 2 micrograms per liter.

If there's one message we hope to convey to the Subcommittee this morning, it is that there are avenues of lead contamination which are simply outside of our control and that an MCL at the tap of 5 micrograms per liter makes water suppliers legally responsible for things we do not control and cannot be achieved as envisioned by the bill.

Mr. Chairman, this concludes my remarks and I'll be glad to answer any questions you may have.

Senator Reid. I thank each of you for your testimony.

Dr. McMullen, I appreciate your concerns about a standard for lead at the end user's tap. What is the closest point to the end user's tap at which it's possible to test water for lead?

Mr. McMULLEN. We feel in the industry that sample locations on the pipe that is actually in the street can be obtained. We can in turn sample just prior to going onto property that is owned by the homeowner.

Senator REID. In your opinion, do you think domestic plumbing fixtures are the major source of lead in drinking water?

Dr. McMULLEN. I think plumbing fixtures as well as the solder and flux are the primary problem.

Senator REID. The fixtures—I didn't phrase that right. It would take both, wouldn't it?

Dr. McMULLEN. That's correct.

Senator REID. I understand that.

Mr. Muth, I appreciate your testimony. I think there's certainly room to work together on this legislation. Senator Lieberman and I are interested in the end product. I think as I indicated to Mr. Zelms, I know that our legislation doesn't cover those areas that you have listed in your June 27th letter to me. Your industry thinks that the legislation is not clear enough as it relates to those products—we'll have to make sure that it is.

Mr. Muth, strict regulations governing the use of new drugs—and they are very stringent—have not stopped the development of new drugs. Why do you think regulations governing new uses of lead will stifle the development of new products?

Mr. MUTH. First of all, it's because of these criteria set forth in the bill. Let me be clear about this. This bill says that in order to permit a new product to be introduced into commerce, the Administrator must determine that: "the manufacture, processing, use, and disposal of the product is not likely to contribute to the dispersion of lead into the environment;" and no comparable product is available in commerce. We understand—and I think the Committee understands—that the drafters of this provision intend that "comparable product" be interpreted to mean anything that costs up to five times as much.

Faced with that kind of a barrier, starting out in the research lab, who is going to devote time and energy to working with this material?

The gentleman who testified earlier said that perhaps we could distinguish in the new product area between recyclable and nonrecyclable lead. But, after all, there is some dispersion into the environment in the process of recycling. So whether the item is recycled or not recycled, there will surely be some, perhaps minimal, but some dispersion into the environment.

I don't think the battery for the newly announced General Motors electric vehicle would pass this test.

Senator REID. I think that perhaps we could clarify that by saying "and/or" rather than "and," because I think it means "and/or." But that's technical.

Mr. MUTH. That's a very important point as to what that provision actually means.

Senator REID. I appreciate you bringing that to our attention. I think that could be made clear as to the intent of the legislation.

ASARCO has tended to diminish the EPA study which was called "Characterization of Municipal Waste Combustion, Ash, Ash Extracts, and Leachates." ASARCO and the municipal solid waste industry suggested that EPA should have concluded that incinerator ash is non-hazardous. Are such arguments accepted by anyone outside those directly involved in either the creation or management of ash?

Mr. MUTH. I have to apologize, Senator, the——

Senator REID. We'll submit that in writing and you can get back to us on that.

Mr. MUTH. I would be happy to deal with that.

I have to say that the very study that you refer to is one of the three that we find very encouraging with respect to ash. The area of difference I think lies in whether the laboratory tests that EPA uses to characterize materials as "hazardous" or "non-hazardous" should guide us here, or whether we should be looking at the evidence from actual landfills and the leachate that is collected in the landfill.

There is no question but that the laboratory tests that EPA has used, some using acetic acid, which has a high affinity for lead, will demonstrate time after time that ash and other lead bearing materials are "hazardous." And yet, when EPA's contractors—not us—when EPA's contractors look in the actual landfills and in the actual monofills for ash, they find that the leachate is well within the limits of risk that they consider acceptable.

So I think that's the area of difference. We don't want to get confused between the lab tests, where we do indeed have differences with EPA, and the actual real world tests, which we think demonstrate that the materials can be managed quite safely.

Senator REID. And if you could respond more specifically in writing, we'd appreciate that.

Mr. Zelms, in a press release dated May 8, 1990, the industry stated that the Lead Exposure Reduction Act of 1990 "bans critical uses of lead such as solder in electronics could lead to the banning of lead in applications as diverse as car batteries, radiation shieldings, medical, dental, and hospital applications, and restricts or bans future beneficial and safe uses of lead."

In view of the fact that the act bans only 13 specific products, has no comparable substitutes clause, and would restrict future uses of lead only when they do not contribute to human health—that is that they're harmful—or when comparable substitutes are available, could you tell me how you came to the conclusions detailed in the press release?

Mr. ZELMS. Yes. I think it parallels what Mr. Muth has said. The stipulations within the bills toward future use, we feel would significantly compromise the thought process of whether or not you would consider using lead. If that can be restructured, as you just suggested, then that may not be as much of a concern. But as you've just witnessed in the last few months, General Motors announcing an automobile called an Impact, which is for the purpose of environmentally clean activities, utilizes 800 pounds of lead acid batteries. If you project that into the future for uses that you and I haven't even thought about—and if there is some kind of, in my words, astigma, attached to that consideration, then that could very definitely have the effects of ultimately eliminating the metal.

Senator REID. Do you know how many tons of lead each year are used in the 13 specific products which would be restricted under the Lead Exposure Reduction Act of 1990?

Mr. ZELMS. Yes, sir. I can back you into it. If you say that batteries consume some 78 percent to 80 percent of the lead consumed in the United States, then the remainder is what's used in other uses that are non-batteries.

Senator REID. Roughly 25 percent of the——

Mr. ZELMS. We'll say 20 percent.

Senator REID. Okay.

Senator Lieberman.

Senator LIEBERMAN. Thank you, Mr. Chairman.

Again I thank the witnesses and I appreciate—obviously we have disagreements, but I appreciate their presence, their testimony, and their continuing dialogue.

Mr. Muth, I know that you feel and you said quite clearly that the regulatory system that we're setting up in this bill to govern particularly the new uses of lead is too restrictive. You compared it to TSCA. It is true under TSCA that a cost benefit analysis is done, but it is only done if EPA decides it wants to review the new uses of lead in products. My understanding is that they have never done that. Do you have any contrary understanding?

Mr. MUTH. No, but it is my understanding that they are thinking very hard about that now. I can assure you that is something we are prepared to discuss. We, too, are concerned, Senator, when even a quarter of one percent of the lead that we produce is misused somehow. So we are not opposed to a systematic review of products. We are indeed probably going to launch such an effort within the industry regardless of what EPA or the Congress chooses to do.

Senator LIEBERMAN. I appreciate that. That's a good motivator and a good idea in that sense. But I do want to say for the record that up until this time EPA has never, to my knowledge or yours, invoked this authority to review new uses of lead, so there have been no limitations. Part of our concern about the health problems that we have heard result from lead and the lack of any action by EPA that led us to want to put this provision in the bill.

Part of the problem here—and this is a complicated problem which begins with an initial insight. I think the witnesses we've heard before would say that there are certain products in which lead is not only useful but perhaps in some indispensable. But they would say that lead inherently is a toxic material. So we have to watch the way that we use it. We have to watch it all along the chain. Do we have a baseline agreement on that understanding lead? Mr. Zelms or Mr. Muth.

Mr. ZELMS. I'm sitting here shaking my head. We have never disputed that lead is absolutely, unequivocally toxic.

Senator LIEBERMAN. But what then?

Mr. ZELMS. Our position is that it must be handled in such a fashion that that toxicity is controlled to acceptable levels. I think where our disagreement lies is in the fact that certain portions say it is not being handled in that fashion. I think we would agree with that in past issues, but we think issues of today, production and consumption of lead are essentially being produced and consumed in a fashion that is not generating a significant health risk.

Senator **Lieberman**. In the bill we do, as you know, ban the use of lead in 13 products. Would the industry support the removal of any of those products—lead in paint, lead in food cans, lead in the pigments in plastic bags used to package food, lead in gasoline?

Mr. **Zelms**. Senator, you can appreciate that I am a representative of a trade association. For some legal reasons, I can't comment on any particular member within our association. I think this, I think our association must give consideration. I think that's as far as I can comment on specific items.

Senator **Lieberman**. In that sense, I liked what Mr. Muth said before. If most of the lead is being used in batteries today—that's correct isn't it?

Mr. **Muth**. Yes, 80 percent today in the United States.

Senator **Lieberman**. We can argue about how effective it is, but clearly there's a lot of recycling going on. You're creating a problem for yourself, let alone the people around this country by just putting up your hands and saying no every time we suggest a ban or a regulation on some of the other 20 percent to 25 percent of the lead that's being used in this Country.

Mr. **Zelms**. Please understand that we are not saying an unequivocal no to all the considerations in your bill. Some, yes. But speaking both as an industry association and as independent companies, we have been very active in the not to distant past in trying to shape this because we certainly recognize the pressure. I think the things that you would see that our independent companies are doing in and around their sites would certainly have to be viewed as those of a proactive company.

Senator **Lieberman**. I agree, and I appreciate that. I appreciate that reduction.

I understand that it's difficult for you to speak for a trade association. Perhaps I'm about to give you an impossible task, but it would be really helpful if you did come back at some point in this process and say, "Well, these are bans that we aren't going to oppose."

Mr. **Zelms**. Senator, that subject is under consideration as we speak.

Senator **Lieberman**. Mr Muth.

Mr. **Muth**. If I could comment on that, Senator, what it is possible for us to support is a process for making these determinations based on a record. I don't mean to choose sides between Congress and the EPA, but the EPA does have available to it and is now employing the mechanisms to pursue such a process. We're involved in it. I would assume that at the end of this process there are going to be uses of lead that are going to be seen as problematical.

We support the process. But to ask us as lead producers to look at our customers, many of whose businesses we know very little about, and to judge what is good, what is bad, what is necessary, and what is essential, is asking really a great deal of us. But we support the process.

Senator **Lieberman**. I understand.

Let me explain part of our impatience here with EPA. It's been a long time since the Government has had the authority, not only EPA but HUD, and very little has happened. So the more we hear about how serious a public health problem this is, the more impatient we naturally become and the more we want to put into law some specific mandates. As Doctor Kimm said, and I understand it, they have a lot of pressure on them from a lot of different areas to do a lot of different things. The regulation of lead may sink in those priorities unless there's a law with teeth in it.

Let me just mention one final thing, and it's part of the complexity of this problem. This is that even if we could agree that the industry is using lead in certain products where the risk of dispersion is minimal and perhaps there's not a comparable substitute, we have to think about what happens when that product gets thrown away. That's something that we have to work on together.

I had some folks come into my office yesterday on a totally different subject who happened to have a process for recycling plastic. Not knowing of my interest in this subject, they showed me a picture of a mound of millions of pieces of phone wire in which lead had been used that had been dumped somewhere. It was now a Superfund site. I'm not holding anybody accountable for this, but they were saying that the company and the Government had come to them asking them how to clean it up because there was plastic in it as well.

That's the other end of the problem. We put it in a dump site, water leeches through, it's acidic, and it gets dispersed into underground water, and we have a whole other problem.

I don't know if you have any response to that.

Mr. **ZELMS**. Well, I would only offer one comment, that as we look for the substitutes, I think it behooves us to look at the substitute in fashion of its environmental accountability and its disposability in the future.

Senator **LIEBERMAN**. I agree.

Mr. **ZELMS**. It would serve no purpose to replace one with another.

I would like to say one other thing to Senator Reid, in the interest of timeliness. The issue that you raised about municipal solid waste—I don't mean that it perhaps is comprehensive, but if you would refer to my testimony on page 20 you will find some specific data on that subject that might fill your needs until you could get the full study.

Senator **LIEBERMAN**. Thank you both.

Thank you, Mr. Chairman.

Senator **REID**. Thank you very much. This Committee stands in recess until 1:30 this afternoon.

[Whereupon at 12:17 p.m., the Committee recessed to reconvene at 1:30 p.m.]

AFTER RECESS

Senator **REID**. The Committee will come to order.

Our first panel this afternoon will consist of Mr. David Serles, President of the Institute of Scrap Recycling Industries; Mr. David G. Bolts, Iron and Steel Institute; Mr. David E. Waldron, Cookson

Pigments, Incorporated; and Mr. Gerald Dubinski, Battery Council International.

Gentlemen welcome to the Committee. As we mentioned this morning, your entire written testimony will be included in the record, and if you could summarize your testimony within five minutes, it would be appreciated.

Mr. Serls.

STATEMENT OF DAVID SERLS, PRESIDENT, INSTITUTE OF SCRAP RECYCLING INDUSTRIES, INC.

Mr. **Serls**. Mr. Chairman, I'm pleased to have this opportunity to comment on S. 2637, legislation to reduce the levels of lead in the environment. My name is David Serls. I am President of the Institute of Scrap Recycling Industries, ISRI. ISRI represents more than 1,700 processors, brokers, and consumers of scrap metal, paper, glass, plastic, and textiles, and suppliers of goods and services to the industry.

In the interest of time, I will summarize my statement.

The Institute supports efforts to reduce or eliminate the use of toxics in manufactured articles. We are especially concerned about such toxics where their use impedes successful recycling. While S. 2637 applies directly to lead it also applies indirectly to the full range of ferrous and non-ferrous scrap which the recycling industry handles. We do not believe that the authors of the measure intended to harm the recycling effort.

We are concerned that S. 2637 includes the term process and distribute in its list of activities to be banned where certain products are used. Neither EPA nor the Congress has ever provided a clear definition of processing as used in TSCA. Thus, under the circumstances, we must assume that recycling is included. If that is the case, then the scrap industry could no longer recycle painted bridge beams, soldered pipe, plastics, brass and copper plumbing fixtures, construction materials, curtain weights, et cetera. They would be landfilled instead, adding at least six to ten million tons a year to the solid waste disposal stream.

To the extent the terms process and distribute would apply to the recycling of those items, the bill would bar such activity. Thus, the bill must remove that confusion over the application to recycling and state clearly that the terms apply only to the addition of lead to new products, not the processing or distribution of existing products in the recycling process.

With regard to battery recycling, we are interested in the provisions of both S. 2593 and S. 2637. Many of ISRI's members accept batteries—paying the market value for them—consolidating but not processing them, and in turn selling them to secondary lead smelters which have obtained appropriate permits as required by EPA.

Under S. 2637's provisions, it would be unlawful for an individual to deliver a battery to ISRI's members. This would make it more difficult for the public to have their batteries returned to commerce, and thus would lower the battery recycling rate. We respectfully ask the subcommittee to include the scrap industry among those eligible to receive batteries under the provisions of the bill, including listing the industry on all required signs and labels.

I might add that approximately 45 percent of the batteries presently being recycled are recycled by people in our industry.

Having made this request, Mr. Chairman, I would like to add that fewer and fewer of our members will accept scrap batteries. Because RCRA defines scrap lead as a waste, and not the raw material that it is, anyone delivering scrap lead to a smelter for reuse has, as far as RCRA and Superfund are concerned, arranged for disposal of a hazardous substance. Obviously, the person who returned a scrap battery for recycling did not arrange for disposal of anything. He arranged to have it reused. Our processor—and I emphasize processor—members do not break batteries and do not smelt them, yet they become liable for the breaking and smelting done downstream. By applying the heavy hand of Superfund to a recycling activity that should be encouraged, Congress has inadvertently chilled the recycling of scrap batteries. If the subcommittee wants to help ensure that all scrap batteries are returned for reuse, the best way to do so would be to make clear in S. 2637 or S. 2593 that the return of scrap batteries to a smelter for reuse shall in no way constitute an arrangement for disposal of a hazardous substance.

In summation, Mr. Chairman, we look forward to working with the subcommittee both on this issue and others such as RCRA in the future.

Thank you.

Senator **Reid**. Thank you, Mr. Serls.

Mr. Boltz.

STATEMENT OF DAVID G. BOLTZ, AMERICAN IRON AND STEEL INSTITUTE

Mr. **Boltz**. Chairman Reid, my name is David Boltz. I am Manager of Environmental Regulatory Affairs, Waste Management in the Environmental Affairs Department of Bethlehem Steel Corporation. I am here today on behalf of the American Iron and Steel Institute, the trade association representing the iron and steel industry of the United States.

Although AISI's prepared statement is directed to both S. 2593 and S. 2637, my comments this afternoon address only S. 2593.

The steel industry supports reasonable legislation designed to control the commercial use of lead so as to protect human health and the environment. However, we are concerned with certain ambiguous wording in Section 203 of S. 2593, and one provision in particular that would impose unreasonable requirements on the steel industry.

Section 203(c) sets forth limitations on the concentration of incidental lead in any package or packaging component. Our first problem is that the language of this provision applies to both the package and any packaging component. We are specifically concerned with the definition of packaging component. Our second problem is the ultimate concentration limitation of one part per million that would apply to the incidental presence of lead. Such a limit is unreasonable and technically unattainable.

Before I discuss each of our concerns, I would like to briefly mention some key points associated with the production of tin coated steel, which is commonly used to make packages, as that term is defined in S. 2593. After the steel is rolled to the desired thickness and the surface is properly prepared, a thin layer of tin is electroplated to each side of the strip. The tin used for production of electrolytic tin plate is designated as Grade A tin and must contain no more than .05 percent or 500 parts per million of lead. Studies have shown that the tin plated onto the steel will contain approximately the same amount of incidental lead that is found in the purchased tin.

Incidentally, the major source of lead in tinplated food containers was largely eliminated during the past few years by the substitution of drawn and ironed and draw-redraw two-piece containers, and wire-welded three-piece containers, for the three-piece cans with lead-tin alloy soldered side seams.

Now, with regard to AISI's first problem, we believe it is possible to interpret section 203(c) in at least two ways. I've included pertinent language from section 203(c) here in the text for your convenience and for ease of reference.

The first interpretation would focus on the word package as it is defined in section 202 of the bill. That is, "a container providing a means of marketing, protecting, or handling a product." In this instance we believe that a container made from tin-coated steel qualifies as a package because a steel can which is uncoated would not be able to provide a safe or reliable means of marketing, protecting, or handling a product. A tin-coated steel can, considered as a single item, would be able to meet the bill's 100 ppm limit for incidental lead, but we do not know any technology that would allow such a can to meet a one ppm limit.

We are aware of another possible interpretation, that any packaging component would have to be evaluated for its incidental lead content separate from the package it is associated with. Because the term packaging component includes coatings, AISI is concerned that EPA, for enforcement purposes, could maintain that all coatings, whenever applied, would have to be evaluated separately. However, the definition of packaging component in Section 202 refers to any "individual assembled part of a package" and goes on to list specific examples.

In my earlier discussion of the steel coating process I noted that the tin is applied to the steel in the steel plant and then cans and other packages are made from the tinplate by others. Tinplate is one of the materials used to make a can; therefore, it constitutes an individual part of an assembled can while other materials, such as lacquer coatings, labels, and so on, would be separate parts added to the tinplate either before or after it is formed into a can.

In view of the bill's definitions of package and packaging component, AISI believes that the intent of this legislation is to require tin-coated steels, as opposed to any individual coatings applied to steel sheet at the steel mill, to meet applicable limits for incidental lead. If this interpretation is correct, AISI requests that it be confirmed in some way, either in the bill itself, or in the legislative history of the bill.

I now want to focus on the proposed one part per million limitation on incidental lead in section 203(c)(4), which would be effective four years following the date of enactment. This requirement is simply unreasonable. It seems to be very arbitrary, and we doubt that it can be shown to be necessary to protect human health and the environment. The only tin supply which approaches this level of purity is the tin obtained from commercial detinning operations, but there are preferential uses for this grade of tin in the pharmaceutical and chemical industries. Besides, the steel industry's needs could not begin to be met from this limited secondary source of tine.

We believe that EPA's recently promulgated test for evaluating the potential toxicity of waste materials, the Toxicity Characteristic Leaching Procedure, should serve as an objective reference for purposes of setting a lower allowable limit for incidental lead. Based on test work conducted on a sample of common commercial tinplate, where the tin coating contains several hundred ppm of incidental lead, we found that the level of lead in the leachate was below the limit of detection, that is, below 0.2 milligrams per liter. Thus the leaching characteristic of a discarded tin-coated steel can, exclusive of other components, is far below the 5 milligrams per liter level at which EPA would be concerned about a potential threat to human health or the environment.

We therefore recommend that lines 12 and 13 on page 10 of S. 2593, which specify a one ppm limit for incidental lead, be deleted. A limit of 100 ppm, as recommended by the Source Reduction Council of the Coalition of Northeastern Governors in its model toxics control legislation, seems to strike a proper balance between available raw materials, technology, and health concerns, and it would avoid the severe and unnecessary disruption in the canmaking industry that would occur if a one ppm standard is enacted for incidental lead.

AISI appreciates the opportunity to present our views to you on this legislation. I would be happy to answer any questions at the end of the panel discussion.

Senator Reid. We'll give you that opportunity in just a few minutes.

Mr. Waldron.

STATEMENT OF DAVID E. WALDRON, VICE PRESIDENT, COOKSON PIGMENTS, INC.

Mr. Waldron. Mr. Chairman, thank you for the opportunity to present testimony.

I am David Waldron, Vice President for Marketing at Cookson Pigments, Incorporated.

I will concentrate on the provisions that impact us directly to conserve time.

S. 2637 adds to the Toxic Substances Control Act a new section 402 which includes a subsection which bans the use of lead in plastic additives, printing inks, and pigments. This provision would drive Cookson Pigments out of business and is therefore of great concern to the company, its employees, and other pigment producers. Furthermore the bill would cause significant unnecessary cost penalties to United States businesses. None of this is needed in order to accomplish the bill's stated environmental goals.

We also oppose the sections in S. 2593 that would restrict the use of lead compounds in packaging. The justification given for such a restriction is that packaging containing lead is a significant part of the municipal waste stream and thereby poses a threat to the environment. However, packaging represents a small part of lead in municipal solid waste, the concentrations of lead in municipal waste leachate are in any event extremely low, and there are more cost effective ways than a ban on lead in packaging of preventing lead from reaching the environment after the incineration of lead containing articles.

Under the bill's proposed new TSCA section 402, the portion of the United States pigment color industry that uses lead would cease and the markets for these pigments will be eliminated.

To reach the goal of reduced lead exposure, the provisions of this bill need to address articles with which the public comes in contact. Our pigments do not threaten the general public with a significant exposure to lead. Therefore, leaded pigment manufacture should not be addressed in this bill. As for the production of leaded pigments, the Cookson Pigments plant has made many advances in the safe handling of pigment products to reduce the lead emissions to the environment, including low dusting.

The major markets for leaded pigment colors are the paint and coatings, printing ink, and plastic industries. These pigments are used for many properties and for their brilliant colors, excellent color stability, low solubility, opacity, and value-in-use.

The paint industry voluntarily removed the highly soluble lead carbonate from paint in 1950 so that industry does do things without regulation and legislative moves.

The printing ink industry takes advantage of the opacity, low solubility, cost, and brilliant colors of these pigments. Communication and sales appeal are important attributes of color.

The plastics industry uses silica encapsulated leaded pigments where there are no substitutes that give these colors at high processing temperatures.

Eliminating leaded pigment colors from articles of commerce would not reduce the amount of lead exposure in any meaningful way because articles so pigmented exhibit extremely low bioavailable lead. Banning pigments containing lead would not result in a reduction in bioavailable lead in air, in the solid waste stream, in food, or in water. Yet bioavailability is the true measure of the hazard potential of a neurotoxin.

The concept of bioavailability is recognized in EPA's Clean Water Act when controlling the leachability of various compounds including lead. European regulations rely heavily on the concept of solubility, leachability, and bioavailability.

There are no substitute yellow and orange pigments that offer the same brilliance and combination of properties. Many of the so-called substitutes have unknown toxicological risk potentials as compared to the extensively evaluated lead chromates. Also, most of the hopeful substitutes are organic pigments that use imported raw materials. Some of the intermediates used in the production of these organic colors have health risks much greater than those being discussed today.

The cost of these substitutes that can be used with sacrifices in properties are 4 to 30 times the cost of leaded pigments. The total bill for substitution of leaded pigments with inferior colors will be over $200 million to industry.

What are the other costs of S. 2637? The closure of three United States pigments plants would mean the loss of over 500 jobs. To close facilities that are already regulated under the OSHA lead standards and have their releases regulated under the Clean Air and Water Acts in order to achieve an insignificant reduction in lead exposure is extremely unreasonable.

Cookson Pigments believes that the provisions in Title II of S. 2593, Lead in Packaging and Packaging Components, are unnecessary. The lead contribution from pigment colors in packaging films and printing inks going into the municipal solid waste stream is very low.

The EPA sponsored Franklin Report on lead contributions report that pigments contribute about 1.3 percent of the total lead in municipal solid waste. When considering only leaded pigment in packaging, this number reduces to about .1 percent.

When lead contained products are incinerated, the heavy metals concentrate in the fly ash. But test results show that leachate from monofills and in disposal sites have very low lead levels. Furthermore, leachate from fly ash has such a high soluble salt content that it needs to be confined or recycled because the ground water will become undrinkable when the salt content becomes too high. This means that the ash must be disposed of in lined monofills. Therefore it is not necessary to eliminate heavy metals from such small sources as packaging when proper methods for handling fly ash will control the potential leachate problem.

In summary, we believe regulations exist and are successfully controlling lead in the environment as evidence by the continuing decline in average blood lead levels. Banning the use of lead in pigments will not produce any real environmental benefit and will cause considerable economic harm.

Thank you.

Senator Reid. Thank you.

Mr. Dubinski.

STATEMENT OF GERALD DUBINSKI, BATTERY COUNCIL INTERNATIONAL

Mr. Dubinski. Thank you, Mr. Chairman.

My name is Gerald Dubinski. I am the President of Standard Industries, Incorporated, a lead battery manufacturer headquartered in San Antonio, Texas and a past President of the Battery Council International. I am pleased to be here today to express BCI's views on S. 2593 and S. 2637.

Mr. Chairman, in March BCI's then President, William Horton, testified before your subcommittee. In that testimony, Mr. Horton described our strong support for lead battery recycling. I will not repeat now what Mr. Horton said, but with the Chairman's permission, I would like to submit a copy of his testimony for the record.

Senator **Reid**. That will be the order. (See p. 242.)

Mr. **Dubinski**. Thank you.

That having been said, let me note that BCI represents approximately 99 percent of the United States lead battery manufacturing capacity and 92 percent of its recycling, or secondary smelting capacity. We have been very active on both the State and Federal level in promoting the recycling of lead batteries.

The recycling of lead batteries is addressed in section 406 of S. 2637. We believe that section could benefit from several modifications. Nevertheless, we support its straightforward, self-implementing approach. Therefore we urge that a provision similar to section 406 be included in any legislation that this subcommittee reports.

In my prepared testimony, I have addressed the improvements we believe we should be made to Section 406 of S. 2637. Given the limited time available to me now, I would just like to highlight two concerns that we have with labeling requirements.

First let me state that BCI supports product labeling as a means to promote recycling. In fact, several months ago, our Board adopted an industry standard that all lead batteries carry the international recycling symbol, with the additional message "Lead/Return/Recycle." I have a copy of that just so you can see what it is.

Senator **Reid**. Thank you.

Mr. **Dubinski**. We expect that all batteries sold in the United States soon will meet the standard. In addition, BCI and several of its members have initiated campaigns to inform the public that batteries can be returned to retailers and from there are recycled.

Subsection 406(j) of S. 2637 would require that each battery be labeled with two elaborate and lengthy statements. As you know, lead batteries already carry a number of safety warnings. The thing everybody's been talking about—I brought one up, but it's a very light one, there's nothing in it. But I just wanted to show you on the top that we have the safety warnings that are required and have been agreed with the Consumer Product Safety Council because we don't want explosions occurring from people improperly jump-starting the batteries. Then we have a date label, so you'll know when you buy the battery. And we have the recycling label up here.

We believe that the lengthy statements required by the bill would either be lost among the other statements or would dilute the effectiveness of these important warnings. Instead, in our opinion, the message to recycle will reach consumers by requiring the international recycling symbol. By combining this product labeling with subsection 406(h) requirement that retailers advertise their recycling obligation and the Federal prohibition on battery disposal through the point of sale placarding, much more will be accomplished.

Our second concern with labeling involves section 404 of S. 2637. That section requires products containing lead to be labeled with the percentage of lead they contain. This may be useful for products not generally understood to contain lead. However, that rationale does not apply to lead batteries. Batteries are commonly known to contain lead. As I mentioned earlier, already are being labeled as containing lead. Moreover, the precise lead content of batteries varies quite widely.

Therefore, as we see it, applying section 404's percentage of lead content label requirement to batteries really doesn't provide useful information to the consumers and would be quite a burden for the manufacturers.

Finally, in closing, allow me to express our view on the alternative battery provision set forth in S. 2593. Section 104 would direct to adopt regulations to encourage State recycling programs and to impose a fee on every lead battery sold in the United States. We believe both of these proposals are misguided.

The States already are moving aggressively to implement battery recycling programs. Over the last two years, 25 States have adopted recycling programs and another 12 are well on the way of doing so. These States are urban and represent almost 85 percent of our Nation's populations. Given these circumstances, it does not appear as though the States need guidance or funding from EPA. In fact, mandating EPA involvement could delay the adoption and implementation of environmentally sound programs by creating an extended period of uncertainty.

We also do see any rational basis to support S. 2593's proposal for taxing batteries to create a fund to deal with historic lead paint problems. Batteries manufactured and sold today, and for that matter, historic lead batteries, have absolutely no relationship to lead paint. Indeed the lead used in batteries is of a different type from that once used in house paint. Therefore, while BCI supports Federal activity to address concerns arising from deteriorating residential paint, we bail that funding to deal with the problem should be from some other source of revenue.

We appreciate this opportunity to appear before you today and look forward to working constructively with you and your staff on these and other issues.

Thank you.

Senator Reid. Thank you very much.

Could you tell me, Mr. Dubinski, why lead is used in batteries?

Mr. Dubinski. Why is lead used?

Senator Reid. Yes.

Mr. Dubinski. It's a very technical thing, but in the electrochemistry of a battery, it's found that for the size and weight that lead gives the best return of amperage, which is what you want—electricity—than any other substance we can put in there.

Senator Reid. Are there other types of batteries? I know that we had a manufacturer in Nevada that made lithium batteries. Was lead used in those also?

Mr. Dubinski. No, but you probably do use lithium batteries. Most of those are very small batteries like you would use in an electric razor and a camera.

Senator Reid. These were used in the MX. These were big batteries.

Mr. Dubinski. I'm not familiar with that use, sir.

Senator Reid. They went out of business. [Laughter.]

Mr. Dubinski. But there are lithium, nickel iron that was used in the old Pullman cars, nickel cadmium batteries, nickel zinc batteries—of course we're talking as some of these being primary batteries as opposed to a rechargeable battery, which a lead battery is. It just offers a lot of things that other batteries don't have.

Senator REID. To what extent is the recycling rate for lead acid batteries linked to the price of lead?

Mr. DUBINSKI. We don't think that is too influential on the price of lead. There are some dealers, service stations or such, that may feel that the price of lead is going to go up, which means the price of the old battery would go up, so they would hold that battery in anticipation of it going up. But basically that's short term.

Senator REID. I have one last question. Could you tell me why you don't feel a label on a battery which states it's against the law to throw it away is necessary?

Do you understand the question?

Mr. DUBINSKI. Yes, I understand the question.

Senator REID. The legislation says that it should be against the law to throw batteries away.

Mr. DUBINSKI. I think we can live with that if we could combine that with our recycle label. What our industry is hoping to do is to establish an 800 hotline number where people can call and find out where they can take the old battery if they have no other way to do it. That certainly would encourage them to call.

Senator REID. I would hope so.

Mr. Waldron, in reading your testimony, we certainly understand your personal interest. I say that seriously. You're in business, and this bill is as you see it, could mean that you'd have to go out of business. Is that right.

Mr. WALDRON. That's correct.

Senator REID. Tell me why you couldn't still be in business but still use a different product?

Mr. WALDRON. We are only a producer of pigment colors, pigment colors that use lead, and we do produce some organic colors as well.

Senator REID. But you're saying that there is a specific market for your product?

Mr. WALDRON. That's correct. Primarily the plastics industry which requires heat processing for temperatures that require these pigments.

Senator REID. I certainly hope that it would not be necessary that you go out of business, but let's assume, for purposes of this discussion, that the three companies that you talked about which are like yours go out of business. What would the people that use your product now do?

Mr. WALDRON. The various industries that I talked about—the paint, plastics, and printing ink business—would substitute other colors that have unknown toxicological potentials as well as their intermediates.

Senator REID. The main asset your product has is the fact that the colors are very bright and shiny, is that right?

Mr. WALDRON. And that they have processing properties that the consuming industries need to maintain that color.

Senator REID. I don't understand that.

Mr. WALDRON. Well, in a plastics system, where the plastic has to go up to 400 or 500 degrees fahrenheit, most colors burn out.

Over that temperature as in engineering resins these temperatures are required.

Senator **Reid**. I understand.

Mr. **Waldron**. There are no other products available.

Senator **Reid**. Mr. Boltz, how does the addition of lead to steel increase productivity and the manufacture of machine parts? Are there substitutes which could be used for this purpose?

Mr. **Boltz**. It does increase the ease of machining. Sometimes the steels are called free machine grades. I personally don't have direct knowledge of the mechanical engineering aspects of it. But I'm told that the lead does allow for increased productivity because of the ease of machining. I'm not aware of all the substitutes that are available. I could get back to you with a written response on that.

Senator **Reid**. That would be fine. We'd appreciate that very much.

In reading and listening to your testimony, you talked about tin. In preparing for this hearing, we had a question as to what tin was. We learned that it is an element. Is that right?

Mr. **Boltz**. Yes; it is.

Senator **Reid**. In reading your testimony, does tin have lead in it?

Mr. **Boltz**. It has a certain amount of contamination associated with it in the earth, the same as iron ore, for example, mined at various places in the United States.

Senator **Reid**. What is that product?

Mr. **Boltz**. Iron ore.

Senator **Reid**. I'm sorry. I didn't understand you.

Mr. **Boltz**. When iron ore is mined, it contains manganese and other types of elements that are associated with it when the mineral was formed. There are no domestic sources of tin that we are aware of. The tin that's used in this country comes from Malaysia, Brazil, Bolivia, and various other parts of the world. The contamination level associated with it comes into the electroplating process and then finds its way onto the tinplate itself.

Senator **Reid**. Right.

You're indicating here though that the content of lead in tin is 500 parts per million, approximately?

Mr. **Boltz**. That's the maximum. It generally runs between 300 and 400 parts per million.

Senator **Reid**. Mr. Serls, both the bills we're discussing here today contain provisions mandating battery recycling. Is the scrap recycling industry capable of taking more batteries for recycling?

Mr. **Serls**. Yes, definitely.

Senator **Reid**. Could you give me an estimate as to how many people are employed in recycling of batteries?

Mr. **Serls**. It would be difficult to give you that number in view of the fact that some of our members do not recycle batteries while some of them do. What percentage of their time is spent in recycling and handling—I couldn't answer that.

Senator **Reid**. Is the scrap recycling industry a big industry in our Country?

Mr. **Serls**. I think we could be considered a large industry. In relation to what? People or capital invested?

Senator **Reid**. Tell me both. Capital expenditures for equipment and people. Are there 200 people involved in the business?

Mr. SERLS. We can provide all that for the record, but I can tell you that our industry recycles, in the products that we handle, about 94 million tons a year of material that could end up in a landfill if our members did not recycle the items that they handle.

Senator REID. Senator Lieberman.

Senator LIEBERMAN. Thank you, Mr. Chairman.

I apologize to you and the witnesses for the fact that I couldn't get back here right when you started.

I do have a few questions.

Mr. Dubinski, I was encouraged by your exchange with Chairman Reid about the label. Although I don't think either of us is wedded to the particular wording of the label suggested in the bill, I, myself, felt—and we conducted an informal survey of the staff here of the Committee—and found that there wasn't a clear understanding of what the international recycling label meant, believe it or not. Now maybe over time, that would happen.

Did I understand you to say that so long as we didn't remove the international recycling label, that you would basically be willing to accept something along the lines of the language that we have which wants to inform people that it's illegal to throw away a battery and that Federal law requires retailers to accept used batteries?

Mr. DUBINSKI. I don't think we have any problem doing that, sir.

Senator LIEBERMAN. I appreciate that. That's one less problem for all of us.

Mr. DUBINSKI. Again, we don't want to make it so big that, as I showed the battery——

Senator LIEBERMAN. You have a good point there. I looked at that battery and it does seem to me that there could be room for that message. The warnings that are here are repeated up here. And there is some room here to put that message. Basically it's just to let people know that they have an obligation to return it.

Mr. DUBINSKI. We would welcome that. That's not a problem to us.

Senator LIEBERMAN. That's great.

Mr. DUBINSKI. Again, we would hope that the exact amount of lead in each battery would not be required.

Senator LIEBERMAN. On the label?

Mr. DUBINSKI. Yes, one of the provisions is asking for that.

Senator LIEBERMAN. That's a separate point.

Mr. DUBINSKI. Yes.

Senator LIEBERMAN. I think our major concern here is that the person who purchases the battery knows that he/she can't throw it away and that the person who sold it to them is obligated to take it back.

Mr. DUBINSKI. Right.

Senator LIEBERMAN. Our concern—I know we've had some exchange over the sign at the point of purchase. It can't hurt, but my concern that three or four years later, when somebody was ready to throw out a battery, they wouldn't remember that sign that they saw at the point of purchase.

Mr. Serls, I wonder if you could just tell me a little bit more about what happens in your business? Who brings you the batteries? What do you do with them, technically? And what kinds of products are you basically recycling?

Mr. **Serls**. We buy these batteries from service stations, from individuals who don't take them back——

Senator **Lieberman**. You do have some individuals coming in?

Mr. **Serls**. Absolutely. We call that our retail trade. As far as the technical nature of what we do—it's not very technical at all. We handle the battery under the regulation of EPA, the battery is properly stored, it's palletized on a pallet, strapped securely, and it's shipped to a battery consumer, smelter of the material.

Senator **Lieberman**. You ship the whole battery?

Mr. **Serls**. Yes, we do not break the battery.

Senator **Lieberman**. You don't break it down?

Mr. **Serls**. No, not at all. In fact, broken batteries are not acceptable to us. We will not handle them.

Senator **Lieberman**. So basically you're just there to accept it and then send it along?

Mr. **Serls**. That's correct.

Senator **Lieberman**. Is it basically automobile batteries which you're getting?

Mr. **Serls**. I would say that would be the bulk of it, from farm equipment also.

Senator **Lieberman**. Very briefly, Mr. Waldron, I understand the problem that you have here, have you had any sense—we talked a little bit this morning about workplace risks and risks to workers and what the workplace risks are to people who are working with lead paint or some of the printing inks that you're talking about.

Mr. **Waldron**. The lead standard regulates exposure to our workers and we conform to those requirements as well as our customers and so on down the line.

Senator **Lieberman**. I take it from what we heard today that there are products printed or colored with lead pigments that are used on packaged food. Would you be familiar with that in your business?

Mr. **Waldron**. There are certain inks that would be used on packages that do not come into contact with food.

Senator **Lieberman**. Do you have any estimate yourself on what the risk might be that's involved in that?

Were you here this morning?

Mr. **Waldron**. Yes, sir.

Senator **Lieberman**. How do you respond to that testimony that you heard this morning?

Mr. **Waldron**. We've looked at the leachate and extraction of heavy metals from printing inks, plastics, and paint from our customers and find that they are within the leachate content of the municipal solid waste ruling. These products don't come into contact with food and therefore are not regulated by an FDA type of regulation.

Senator **Lieberman**. Part of the testimony that we heard today, and we've heard it from others that the New Jersey study about the plastic bread wrapper having lead in the inks that are used, save the bag printed inside out and put foods in. There is then a danger of lead being conveyed. Is that realistic to you?

Mr. WALDRON. Without doing an exact test on that particular item, we've looked at similar things—in fact one of the test methods used to look at a printing ink that is put onto a film is to put scotch tape on it and rip that scotch tape off. The printing ink needs to stay on the package. It cannot come off on the scotch tape. Under that kind of a test, if it won't be removed with a significant shear rate, it won't come off in just contact with food or anything of that nature. The leachate part of it would be extremely low so that the bioavailable heavy metal content, lead in this case, would be very, very low.

Senator LIEBERMAN. In other words, the moisture that might be in a bag if you had some fruits or vegetables in it, wouldn't, in your experience, be enough to remove the lead?

Mr. WALDRON. No, sir. The lead will not be leached out. These products are very, very low in their bioavailability.

Senator REID. Gentlemen, thank you very much for your patience this entire day.

The final series of witnesses this afternoon will consist of six individuals: Mr. Mark Stanga, American Electronics Association; Dr. Dennis Heldman, National Food Processors Association; Mr. William Simpson, Coalition for Safe Ceramicware; Mr. Kurt Weaver, Stained Glass Association; Mr. Steven Hilts, National Fishing Tackle Manufacturers Association from Nevada; and Mr. Doug Johnson, Water Gremlins.

We would ask first to hear from Mr. Stanga.

STATEMENT OF MARK STANGA, AMERICAN ELECTRONICS ASSOCIATION

Mr. STANGA. Mr. Chairman, I am Mark Stanga, Environmental Affairs Counsel for Litton Industries. I serve as co-chair of the Lead Task Force of the American Electronics Association.

My statement today is made on behalf of the AEA, the Computer Business Equipment Manufacturers Association, and the Electronic Industries Association.

We share your desire to minimize the amount of lead released into the environment. Some of the provisions of S. 2637 would regulate essential uses of lead in the electronics and electrical equipment industry—probably unintentionally. Legislative efforts should focus on identified sources of risk. The bill, as written, fails to distinguish between major and minor sources of risk. Refocusing on high-priority sources will provide ample protection of public health and the environment, while avoiding disruption of sources of minimal concern where substitutes are difficult or impossible to obtain.

Before describing the major uses of lead in the electronics and electrical equipment industry, I want to make some general observations regarding regulating the industry's lead uses. There is virtually no consumer exposure from lead in electronics uses. Any potential concerns would be from environmental exposure through disposal of products containing these materials in municipal or industrial solid waste streams.

For most electronic and electrical equipment industry uses of lead, the amount of lead disposed of is small and is generally bound in alloys or other stable materials so that the lead is not bio-available. Lead is essential for many of these uses, and substitutes have been difficult or impossible to obtain.

The existence of military specifications which require the use of lead-containing materials is a complication. Where the concern is the potential release of lead through waste incineration or leaching in landfills, regulating product composition is not the best way to keep lead out of the environment. It may make more sense to explore recycling of appropriate materials, source separation, or other techniques.

Of the 1.2 million tons of lead consumed in the U.S. each year, only about 8,000 tons, or less than 1 percent, are used for solder in the electronics industry. The amount of lead released to the environment from solder and electronics and light bulbs is minimal. The industry is continuing its research to find substitutes.

There are a few specialized applications for which substitutes have been identified, but the metallurgical properties of tin/lead solder are particularly well-suited to electronics applications. Most potential substitutes involve other heavy metals with their own health risks. Several suggested substitutes have lower or higher melting temperatures, making them unfit for electronics applications. Lead-containing solders have great ductility and the ability to withstand thermal cycling, and greater durability in applications where fatigue factors are critical, such as aerospace.

Today's solder technology in the electronics industry is the result of several decades of research and development. If substitutes were to be used, soldering tools and processes would have to be redesigned and replaced. Substitution would also require substantial product redesign.

S. 2637 would eliminate plastic additives containing lead. A key use for lead in the electronics and electrical equipment industry is as a heat stabilizer in polyvinylchloride insulation. Again, this is not a use which results in consumer exposure to lead.

The majority of lead-based heat stabilizer applications have been replaced. There are no products available that can replace lead-based stabilizers for power wiring and telephone cable. Lead provides essential qualities such as insulation, flexibility, weathering, and humidity resistance.

Although S. 2637 does not directly restrict the lead content of glass products, there are several important glass products in our industry which might be affected.

Lead is an indispensable ingredient in the manufacture of the glass used to house television picture tubes. Glass panels, funnels, necks, and frits all contain lead oxide. The primary reason for using lead is its high opacity to X-rays. Again, this is an area where substitutes are either not available or not very promising. Heavy metal substitutes present their own hazards.

In disposal, the lead in television is fully encapsulated and presents very little risk of exposure, because it is unlikely to become bio-available.

Lead is also used in the base of incandescent bulbs and fluorescent tubing, holding the filament wires, due to the excellent electrical resistivity and insulation properties of lead. The total amount of lead from lightbulb glass that is disposed of is minuscule.

Some uses of leaded glass serve both as an energy efficiency measure and also for health protection purposes. High intensity discharge lamps provide a dramatic savings over conventional lamps. The leaded glass in this application is necessary to assure protection against ultraviolet radiation.

In fact, every use is application specific. Any substitute must match the properties offered by lead for the specific use being considered. To illustrate this, I have with me a circuit board today—a printed circuit board—which has over 9,000 separate soldered connections. If any one of these connections were to fail during use, it is likely that the entire circuit board would fail. This is a CPU for a mid-ranged computer.

Senator **Reid**. What does CPU mean?

Mr. **Stanga**. It is a central processing unit. It is the processor for a computer.

Uses of lead in the electronics and electrical equipment industry are extremely complex. The indiscriminate ban on lead-containing products in S. 2637 does not address those critical uses. We do not use lead primarily because of cost or convenience. Our uses are based on numerous specific critical properties. It would devastate the U.S. electronics industry to eliminate lead from these remaining essential uses.

I should note that the American Electronics Association has been contacted by the Aerospace Industries Association and the Semiconductor Industry Association to convey their concerns about this legislation.

We appreciate the opportunity to testify today. We express our strong support in working with you and your staff as you develop this legislation. We will submit detailed suggestions for modifications to S. 2637 and other pending lead exposure legislation.

Thank you.

Senator **Reid**. Dr. Heldman.

STATEMENT OF DENNIS HELDMAN, EXECUTIVE VICE PRESIDENT, NATIONAL FOOD PROCESSORS ASSOCIATION

Dr. **Heldman**. Thank you, Mr. Chairman. I am Dennis R. Heldman, Executive Vice President for Scientific Affairs at the National Food Processors Association.

NFPA is a scientifically and technically based trade association that represents nearly 600 companies, including most of the major food processing companies in the United States. Our membership also includes companies involved in the manufacturing of food containers.

During the past 15 years, the food industry has significantly reduced the potential for human exposure to lead through the food products. This achievement has been the results of a voluntary, cooperative effort between NFPA and the Can Manufacturers Institute. This effort involved the development of new can manufacturing technologies for metal containers, as described in earlier testimony.

The development of new technologies required the commitment of significant resources on the part of the container manufacturers. Conversion to full-scale production of two-piece and welded containers required replacement of existing can manufacturing lines with new equipment, and a commitment by the Food Processing Industry to purchase new containers as they became available.

Economics dictated that new containers be sized to fit existing can filling and closure equipment to reduce conversion costs for the food processing industry, and therefore encourage more rapid utilization of the technologies. Changes in the configuration of some of the new cans required extensive testing to assure the continued safety of thermally-processed foods.

The results of this national effort are illustrated by an 86 percent reduction in the average level of lead in canned food products and an overall reduction in the use of lead-soldered cans from 90 percent of total domestic production in 1979 to about 3 percent in the first quarter of 1990. These statistics clearly illustrate the willingness and the ability of the industry to respond to concerns about safety of the food supply.

The food industry is now prepared to take the next step and voluntarily eliminate the manufacture and use of lead-soldered cans within the United States. Accordingly, NFPA and CMI are recommending that the food processing industry case the production, packing, and distribution of foods in lead-soldered containers. This would include both domestic production and canned foods imported by our members. A copy of our joint position paper has been submitted with the written testimony.

We have completed an analysis of the proposed legislation as it relates to canned food products. In general, proposed legislation, as it relates to lead-soldered containers, can be supported by the food industry with minor qualifications. The six-month effective date in the bill, S. 2637, is insufficient time for any adjustments that might be required. The time period of 12 months, as required in S. 2593, is much more acceptable.

One of the more difficult provisions of the legislation is the banning of imported product in lead-soldered cans. Although this is a worthy goal, the legislation does not address the manner in which this type of regulation could be enforced, nor the regulatory agency responsible for the enforcement. It would be impossible to adequately test all canned products entering the U.S. without a significant budget increase for the responsible regulatory agency. We believe that such costly testing programs would, at best, achieve only limited improvement in food safety.

A serious deficiency in the proposed legislation is the agency assigned with regulatory authority for food containers. The Federal Food Drug and Cosmetic Act clearly establishes FDA jurisdiction over the regulation of food contact surfaces. While it may be appropriate for EPA to be granted responsibility for regulation of canned and non-food items, the legislation should provide that the Food and Drug Administration maintain its historical and Congressionally-mandated regulatory jurisdiction over food contact materials contained, including lead in canned foods.

We hope that you will give serious consideration to these comments from the food processing industry. The industry, along with the canned manufacturing industry, has made significant progress in reducing human exposure to lead through food products, and is prepared to take additional steps in concert with the FDA, as required to protect human health.

Thank you.

Senator REID. Mr. Simpson.

STATEMENT OF WILLIAM SIMPSON, CHAIRMAN, COALITION FOR SAFE CERAMICWARE, ACCOMPANIED BY DAVID A. HARTQUIST, EXECUTIVE DIRECTOR AND COUNSEL TO THE COALITION FOR SAFE CERAMICWARE, PARTNER IN THE LAW FIRM OF COLLIER, SHANNON, & SCOTT; JOHN T. JONES, VICE PRESIDENT FOR RESEARCH AND DEVELOPMENT, LENNOX, INC., LAWRENCEVILLE, NJ; AND LAWRENCE GILL, TECHNICAL MANAGER FOR CERAMICS, MOBAY CORP., BALTIMORE, MD

Mr. SIMPSON. Good afternoon Mr. Chairman and Senator Lieberman. My name is William H. Simpson. I am appearing today as President of the Pfaltzgraff Company of York, Pennsylvania, and as Chairman of the Coalition for Safe Ceramicware, an ad hoc association of the world's leading ceramic dinnerware manufacturers. I greatly appreciate the opportunity to appear here today.

I am accompanied by David A. Hartquist, Executive Director and Counsel to the Coalition for Safe Ceramicware and a partner in the law firm of Collier, Shannon, and Scott; Dr. John T. Jones, Vice President of Research and Development of Lennox, Inc., of Lawrenceville, New Jersey; and Lawrence Gill, Technical Manager for Ceramics at Mobay Corporation of Baltimore, Maryland, a manufacturer of ceramic frits and pigments.

Briefly summarized, the coalition supports S. 2593, the so-called Bradley bill, with some minor reservations. On the other hand, the coalition opposes certain provisions of S. 2637, the Reid bill, because it, in effect, totally bans the use of lead in ceramic dinnerware, despite there being no evidence that the presence of lead in properly manufactured ceramic dinnerware presents a danger to the public health or the environment.

The amount of lead that goes into our products is not important. The relevant issue is how well we keep the lead from getting out. In fact, it is our strong view that the public health would be better protected if government efforts were directed at effective enforcement of FDA lead-release limitations.

As described in my prepared statement, the Coalition for Safe Ceramicware has been involved over the past year in the pending FDA proceeding to reexamine the Federal action levels for leachable lead in ceramic tableware. The coalition has also begun working with EPA to assist the agency in understanding the uses of lead in the ceramicware industry as a prelude to possible regulation under the Toxic Substances Control Act.

Given our ongoing work with FDA and EPA, the coalition supports the Bradley bill's call for regulatory action aimed at reviewing ceramicware standards and testing procedures in order to further protect the public health. The coalition believes, however, that the bill should call for cooperation between FDA and EPA in this effort.

We assume that ceramic tableware, which is re-used repeatedly, is not within the scope of title two of the Bradley bill, which imposes a ban on lead in packaging. To make this clear, we recommend that the definition of package in section 202(1) of the bill be limited to containers that are ordinarily disposed of following use or consumption of the product. This change will ensure that the focus of the ban on lead in packaging remains on the types of disposable packaging that contributes so significantly to the overall solid waste stream.

The Coalition for Safe Ceramicware opposes certain provisions of S. 2637. This bill would effectively ban the use of lead in ceramic dinnerware, despite the fact that ceramic glazes and colors can be, and typically are, formulated in such a way as to pose absolutely no threat to the public health.

In my prepared statement I have explained why lead continues to be used in ceramic tableware. At present, there is no real substitute for lead-containing glazes. The important point, though, is that the presence of lead in ceramicware glazes and colors, in and of itself, is not a danger to the public health. The issue is the potential of a particular glaze or enamel to permit the lead to leach into food, water, or the environment. The low-solubility lead glazes we use today are formulated so that, when properly fired, only minuscule amounts of lead will be released.

There is absolutely no reliable evidence of these products being associated with health problems. For this reason, we strongly oppose the bill's ban on the continuing use of glazes, enamels, and frits containing more than .06 percent lead by dry weight.

This ban on lead in ceramicware is unwarranted. Ceramic dinnerware products contribute almost nothing to the total solid waste stream, as these products are re-used repeatedly and are often passed from generation to generation. Ceramic tableware, with low-solubility lead glazes properly formulated and fired, is entirely safe. Moreover, ceramic dinnerware products having glazes containing lead do not pose any threat to air or water as a result of disposal.

No acceptable leadless glaze system is currently available for major segments of the ceramic tableware market, such as fine china. The bill's ban on lead in ceramicware glazes would literally shut down the industry.

The coalition also strongly opposes the labeling requirement in section 404 of the bill. Consumers would only be confused by such labels, and would be given the false impression that they would necessarily be exposed to lead simply because it is a component of the product. If the ceramic tableware has been produced in compliance with FDA action levels, there is absolutely no danger to the consumer, and therefore, no need to warn him or her about the presence of lead in the glaze.

In summary, the Coalition for Safe Ceramicware believes that the Bradley bill, for the most part, is an appropriate and reasonable Congressional response to growing concerns about the effects of lead on public health and the environment. On the other hand, the coalition urges the committee to reject the ceramicware provisions of S. 2637.

I appreciate the opportunity to testify today and would be pleased to answer your questions.

Thank you.

Senator Reid. Mr. Kurt Weaver.

STATEMENT OF KURT WEAVER, STAINED GLASS ASSOCIATION

Mr. WEAVER. Thank you, Mr. Chairman.

My name is Kurt Weaver. I am pleased to appear before you today on behalf of the nearly 500 member practitioners of the 87-year-old Stained Glass Association of America.

I speak in opposition to three provisions of the Lead Exposure Reduction Act of 1990; namely, sections 402 (a)(2), (a)(8), and (a)(12), which, if enacted, will extinguish forever the light of the American stained glass heritage—a heritage prized by millions of Americans of all religious faiths.

For 10 centuries, the creators of our noble art have constructed stained glass windows bound together by lead came. The unique properties of the lead, for which suitable substitutes are yet to be found, form the matrix of a stained glass widow, some of which exist today unaltered after several hundred years of proper care. The lead came matrix is formed by joining one came to another with lead-based solder, and the images and details are created by permanently fusing lead-based vitreous glass paints and stains to the surface of the glass.

I must emphasize that although the search for alternative lead-free materials continues in earnest, no adequate substitutes have been found to replace these ancient materials, all of which contain lead.

Stained glass windows, cherished and placed for their remarkable beauty, to our knowledge pose very little, if any, environmental hazard to either children or adults, but rather are sources of inspiration and awe. The Stained Glass Association of America, whose members represent third, fourth, or even fifth generations of their families, work in this ancient art form. They clearly understand the hazards of working with lead and the precautions necessary to preserve their health and the health of the craftspeople they employ.

Issues of health and safety are consistently stressed regarding lead and other hazardous materials in our recently-published, 1,800 page Stained Glass Association of America Reference and Technical Manual, and in our own quarterly magazine.

Studios voluntarily initiate OSHA-related environmental lead level testing programs, and, to protect the crafters from dangerous or unsafe lead practices, studios consistently comply with recommended changes in the studio environment.

Recycling of scrap lead is a universally-accepted industry practice. Even the most minute dollop of old solder is salvaged and used in window construction. The expense of solder and lead-bearing paints dictates their complete, careful, and thorough use.

Stained glass poses little, if any, risk to the individual consumer, nor to the American public. The industry rigorously conforms to safe workplace practices, responsibly recycles lead and lead-bearing materials, and safely produces a product generally esteemed for its contribution to the emotional, psychological, and spiritual well-being of the American public. Should this well-intentioned bill become law in its present form, no existing stained glass window in

America, including those in the Washington Cathedral soon to be dedicated, could be saved from natural decay and ruination. The materials necessary to preserve our cultural and artistic stained glass heritage would simply be unavailable.

I am confident that it is not the intent of this committee, nor of the Congress of the United States, to destroy this beautiful and important facet of our cultural heritage. Yet, as this bill now stands, there will be the dire consequences.

To avoid the everlasting destruction of our religious and cultural fabric, again, on behalf of the Stained Glass Association of America, the stained glass industry, and, most importantly, the American people, I urge you to exempt stained glass from this important legislation.

Thank you.

Senator **Reid**. Mr. Hilts.

STATEMENT OF STEVEN HILTS, AMERICAN FISHING TACKLE MANUFACTURERS ASSOCIATION, ACCOMPANIED BY, DALLAS MINER, VICE PRESIDENT, GOVERNMENTAL AFFAIRS

Mr. **Hilts**. Mr. Chairman, I appear before this committee today representing our company, Hilts Mold and Manufacturing of Henderson, Nevada, and also the other member companies of the American Fishing Tackle Manufacturers Association, AFTMA.

With me is Dallas Miner, AFTMA's Vice President of Governmental Affairs.

Regrettably, we are here to express our opposition to the inclusion of our products in S. 2637, because we believe it is unnecessary, will result in the lost of hundreds of jobs in our industry, and, at least with respect to lead weights used as fishing tackle, will not achieve the result you are looking for.

First, I would like to briefly describe our industry and why we are compelled to oppose this bill. There are nearly sixty million anglers in this country, who generate $30 billion in economic activity pursuing their sport. Overall, fishing is the second most popular form of outdoor recreation for American adults.

In 1985 in Nevada, there were 237,000 licensed fishermen, who spent $139.5 million in retail sales, which created 2,163 jobs.

The industry which provides our nation's anglers with the equipment they need and enjoy is very much a labor-intense, cottage industry. The majority of tackle manufacturers are small, family-owned businesses that serve local and regional markets. Unfortunately, it is these very companies that would be put out of business if this bill passes in its current form.

Lead has many small but important uses in fishing tackle besides fishing weights. The properties of lead are such that at this time there are few—and in most cases no—substitute materials available that could economically replace lead. Let me give you an example of what I mean.

Lead is a very dense substance, weighing 707 pounds per cubic foot, while potential substitute materials such as zinc or cast iron weigh 440 and 450 pounds per cubic foot. To acquire the desired weight to provide proper ballast for a fishing lure, the ballast pellets would have to be nearly twice their current size. This, in turn, would cause nearly 80 percent of our lure manufacturers to retool to change the shape and size of the lure bodies.

Retooling for injection molding would cost from a low of $5,000 per mold up to $30,000. Most lure manufacturers have up to a dozen or more molds which would require modification. For many companies, because of low profit margins in a very competitive part of the industry, the capital simply isn't available to make these changes. That is one example of the impact of replacing the use of lead in our industry.

We know of only one substitute for lead that is as dense and pliable. Unfortunately, it is gold, and obviously of no use here.

The sportfishing industry really only begins at the manufacturing level. Products from our industry enter the distribution system and flow through a network of buyers and distributors before reaching retail outlets and our consumers.

For example, our manufacturers are currently starting the production phase for products that will not reach the consumer market-place until the winter of 1991 or 1992. What that means, of course, is that if this bill passes in this session of Congress, the entire distribution system will be clogged with products which could not legally be sold. This, alone, will leave our major retail outlets with hundreds of millions of dollars of products that they couldn't make available to their customers. This, in our view, would represent an economic catastrophe for a broad-reaching segment of this country's tackle manufacturing and product distribution system.

Another important point which should not be taken lightly is the fact that this bill would shut down manufacturers who currently are regulated and monitored under OSHA and by EPA and, in turn, would cause an immediate explosion in basement and garage production of lead weights, jigs, and other tackle products that you seek to ban.

The fact of the matter is that this bill will not eliminate lead fishing weights and other products. It will simply shift the production of these products to unregulated sources.

When we learned of this proposed legislation, AFTMA sent a survey to its membership which asked, among others, the following question: do substitute materials for your use of lead exist? In response to that question, 81 percent of the companies responding said no. I would be pleased to provide the committee with the returns from AFTMA's questionnaire for your review.

In this process, the manufacturers also asked some very legitimate questions, for which we believe they deserve answers. For example, where is the scientific evidence that links our products with any public health problem? We have not found any.

In our view, S. 2593, offered by Senator Bradley, is far more focused on proven problems where additional remedies may be appropriate. On the other hand, S. 2637 seeks the very sudden removal of nearly all uses of lead, with no proof that the products being banned are part of the problem.

The last point I want to make is that the fishing tackle industry is a very environmentally conscious industry. Clean water, healthy habitat, and safe fish are vital to our long-term interest. Toward that end, we will voluntarily participate with EPA, beginning next month, to explore whether or not our products are part of any remaining lead problems and what steps, if any, can or should be taken to change the substitute materials. We trust this will be an orderly, responsible process that eventually will lead to some form of negotiated rule-making. We are fully prepared to work within the system and comply with its results. We are not prepared to simply shut down a major part of our industry, which would occur if S. 2637 becomes law.

Mr. Chairman and members of the committee, I hope that the information and opinions I have shared with you are of value to your deliberations. Clearly, our industry has a lot at stake with this proposed legislation, and we sincerely thank you for the opportunity to have a voice in this process.

Thank you.

Senator REID. Mr. Johnson.

STATEMENT OF DOUG JOHNSON, WATER GREMLIN CO.

Mr. JOHNSON. Thank you, Mr. Chairman.

My name is Douglas Johnson. I represent the Water Gremlin Company of White Bear Lake, Minnesota. Our company has been the leading manufacturer of fishing sinkers for the past 40 years.

The legislation you are considering will have a profound effect on the way we conduct our business, because all of our sinkers are made entirely of lead. We have looked at your proposed legislation and determined that it would be possible, although not easy to comply. We feel that the fishing sinkers could be made of zinc or steel. The cost to retool our products would be substantial. We feel the retail price of fishing sinkers would increase approximately three-fold were we forced to retool and produce out of altering materials.

Our sinker production uses approximately 1,000 tons of lead annually. Our company employs approximately 200 people. We don't think that retooling or shifting to an alternate material would cost any of these jobs.

We would like to point out that of all the materials available to make fishing sinkers, lead is ideal since it is inexpensive, more heavy than other material we know of, and softer and more malleable than alternate materials. Softness is an important characteristic for us, since most of the sinkers we make need to be squeezed shut onto a line.

Toxicity notwithstanding, lead is the very best material from which to make sinkers.

In summary, we would like to state that, while we think lead is the best material with which to make fishing sinkers, we would have no trouble shifting to another material if legislation mandated such a thing. We would ask, however, that any legislation you might pass would indicate to us what alternate materials would be suitable from an environmental standpoint. The abatement period of one year may not be sufficient for retooling on alternate materials.

Thank you for the opportunity to present our position.

Senator REID. Mr. Johnson, you indicated in your testimony that it would cost about three times as much to build a sinker made of something other than lead. I haven't gone fishing for quite a few years, I'm sorry to say. How much do sinkers cost?

Mr. JOHNSON. That's a very hard question to answer because it depends on the sizes and packages, etc. But we would estimate that a $0.75 bag of sinkers would probably go to $2.00 to $2.25, the reason being that alternate materials are at least twice as expensive as lead—at least the alternate materials that we feel are processable and usable based on the knowledge that we have.

Senator REID. Right now, $0.75 is what it costs?

Mr. JOHNSON. Yes.

Senator REID. I know that is an estimate average. You alone use 1,000 tons? Your little company with 200 people? Is that what you said?

Mr. JOHNSON. That is correct.

Senator REID. That's a lot of lead.

Mr. JOHNSON. Yes, it is.

Senator REID. You must build a lot of sinkers.

Mr. JOHNSON. Approximately 200 million a year, give or take an ounce. [Laughter.]

Senator REID. Are most of them sold in this country?

Mr. JOHNSON. Yes.

Senator REID. The people that use most of those fish like I used to—get things caught and hung up, and then you lose everything and have to start over? Is that right?

Mr. JOHNSON. We hope so. [Laughter.]

Senator REID. Mr. Hilts, you manufacture something different than Mr. Johnson?

Mr. HILTS. Yes. We manufacture molds for the fisherman to make his own sinkers and jig heads. They pour their lead into them themselves.

Senator REID. You make the molds so fishermen can make their own sinkers?

Mr. HILTS. Yes.

Senator REID. And did I recall that there are two other companies like yours?

Mr. HILTS. Yes. There are two other companies.

Senator REID. Where do people buy their lead?

Mr. HILTS. Most people get it—wheel weights from tire shops is a very cheap source of lead. Batteries are very common, and linotype lead and cable strippings from telephone wires.

Senator REID. Did you say cable stripping?

Mr. HILTS. Yes.

Senator REID. Is this just kind of a hobby? I'm not promoting Mr. Johnson's business here, but it seems that a package of sinkers is pretty cheap. Why would someone want to make their own?

Mr. HILTS. Mostly cost. Guys that fish a lot will lose a lot of stuff, and that adds up over a course of a year. They get their lead basically for nothing.

Senator REID. So the point that we are making here—and I really don't know that that's a health hazard. That's something the committee is going to have to determine—there is a lot of lead lost each year in lakes and rivers around the country.

Mr. Hilts. That's true. That's why, starting next month, the EPA is going to be working with the AFTMA and finding out what it does.

Senator Reid. EPA is always going to do something. That's why we are here. Now, if EPA were doing more than what they are going to do, that's—the reason they are going to do that is because this legislation has been introduced. But that's good that they are going to do that.

In lakes or streams that you know of, do they ever go around and gather up the lead?

Mr. Hilts. Not that I am aware of. Only fishermen that find it.

Senator Reid. Yes. You just have to be lucky. So 81 percent of the companies you sent your questionnaire to said there were no substitute uses for lead? The other 19 percent, or about one fifth, said that there were substitutes. That would be, as Mr. Johnson said, zinc and iron products; is that right?

Mr. Hilts. Yes.

Senator Reid. Of course, they are harder to work with, aren't they, than lead, which is so soft?

Mr. Hilts. Zinc is much harder to work with. We still have to find out if zinc is going to be acceptable down the road.

Senator Reid. I can remember in my fishing days you would always bite the end of the thing. I don't know if that hurts you. I doubt it. Anyway, these are some of the questions we have.

EPA, separate and apart from our legislation, could ban lead in the use of these fishing products. We state to Mr. Johnson and to you that certainly it is not the intention of Joe Lieberman or Harry Reid to run anybody out of business, and the decision that the committee has to make is whether or not the use of these products is dangerous to human beings. The preliminary information we have indicates that there are some problems. So we'll have to work with you to determine if our initial findings are correct.

Mr. Weaver, we don't have in our home here nearly the amount of stained glass and leaded glass we had in our home in Las Vegas, but there we had lots of stuff that we had. Frankly, I had a great craftsman who made these windows for me. He was a skilled craftsman. Because of that, and the fact that we knew each other, I got a lot of windows. My wife liked all that stuff. So again, the same with you, this is something we are going to have to look into to find out if, in fact, the workers are protected that work with these products, and what precautions are taken—if enough precautions are taken by the people who work with stained glass and leaded glass. We'll be happy to work with your organization to find out if you can still have an industry and we can still have a bill that is productive.

One question that somebody wrote to us said that copper could be used as a substitute for the lead came. Do you know anything about that?

Mr. Weaver. Yes, I do. There is a technique called copper foil where you, instead of putting pieces of glass together with lead came, which is similar to a little I beam or an H, it is wrapped around the individual pieces and the pieces are butted together and then you solder the seam in its entirety.

Senator Reid. With lead or copper?

Mr. Weaver. With a lead-based solder—lead/tin solder—which is what is being used now. There are limitations with that, however. They have proven not to be weatherproof, and they are very rigid and won't endure the time elements involved in stained glass. What we are trying to create are windows that have a maintenance cycle of 80 to 100 years or more. That's something that you wouldn't find with copper foil, I'm afraid.

Senator Reid. Are there many waste products as a result of your craft?

Mr. Weaver. No. We use, in its entirety, the—I shouldn't say it its entirety. We have lead scrap, whether it is in repairing windows, restoring windows, or making new windows. Our practice at our company is to recycle those products. The solder is used up in its entirety. Those are the two primary issues. The glazes and paints, which we use to ornament the glass with, are recycled in the sense that they never leave the building. What I mean by that is that we are talking about powders. The amount that we are using—in a year's time we might use less than a pound of a lead-based paint.

Senator Reid. Mr. Simpson, on the first page of your statement you state that there is no evidence that the presence of lead in ceramicware, in and of itself, presents a danger to the public health or to the environment. Two sentences later you state, "Those few incidents linking ceramic tableware with lead poisoning have involved products that were in gross violation of current Federal standards." Could you explain this apparent contradiction?

Mr. Simpson. The difference is that the first statement pertains to what goes into the products. It is a point that I would like to reiterate. What goes into the product in terms of lead really is not relevant in this discussion. What is relevant is what comes out. In those instances where there has been a problem, it is a case where excess amounts of lead have leached out of the glaze in use. In every instance that I am aware of, that has involved products mostly which have come in from overseas. In fact, every instance that I am aware of, certainly in recent years, are products that have come in from overseas, and they are products which do not meet the lead leaching standards set by the Food and Drug Administration.

So the distinction is between the use of lead in the product and what actually comes out of the product under use.

Did I answer that?

Senator Reid. Yes.

Would you state for the record if there have been any problems from ceramic tableware during the last decade?

Mr. Simpson. Have there been any? There have. Yes.

Senator Reid. Could you tell us why?

Mr. Simpson. Because they are products which have come into this country from outside.

Senator Reid. What you were just talking about?

Mr. Simpson. Yes. The members of our coalition, who are the reputable manufacturers of ceramicware products, do extensive testing and control of their products to assure that they conform to the Food and Drug Administration standards.

Senator Reid. Are there ever inspections?

Mr. **Simpson**. Yes. Inspections and routine and regular testing by the companies, themselves, and by independent testing laboratories.

Senator **Reid**. Is there a lot of ceramicware that comes from overseas?

Mr. **Simpson**. There is. I should add that many of the members of our coalition are overseas manufacturers, because a large amount of what is sold in this country comes in from overseas. But, again, the reputable manufacturers in this country and elsewhere, produce their products in such a way that they do not constitute a danger. It is the small, kind of backyard craft shops and hobbyists that tend to produce products that create a danger, and those products do get into this country.

Senator **Reid**. Is there any possibility that the use of dishwashers over a period of years may cause the lead to leach from ceramicware?

Mr. **Simpson**. I'm not sure of the answer to that question. I think we need to get back to you on that. I know that there has been research done on that, and I just do not know the exact results. My technical advisor, Doctor Jones, tells me the answer to that question is no.

However, one of the issues that we are talking about here has to do with substitutes for lead use. One of the things we have found is that glazes containing lead actually stand up better to the dishwashing detergents that are used today. My understanding is that dishwashing detergents today are harsher because they cannot contain certain substances which have been banned from use by the Environmental Protection Agency. The leaded glazes, ironically, stand up better to those detergents.

Senator **Reid**. Mr. Heldman, I understand that cans containing lead tend to be used only for dry products like coffee, but isn't there a danger of consumers using these cans to store the products once the coffee can is empty?

Mr. **Heldman**. I think that is true in any situation, and that's the reason that, as I stated in the testimony, we, as an industry, along with the can manufacturers, believe it is best that we phase out the use of lead-soldered cans entirely.

Senator **Reid**. Senator Lieberman.

Senator **Lieberman**. Thank you, Mr. Chairman.

Mr. Simpson, let me come back to you. This is an interesting area, and one that we all are so commonly involved in. We don't want to do anything unfair to you, but I think we want to answer concerns that consumers have, as well.

Just to clarify an exchange you had with Chairman Reid, is there any regular inspection of your products to make sure that they are within FDA release levels, or is it more a self inspection?

Mr. **Simpson**. Well, there are both self-inspections and there are FDA inspections.

Senator **Lieberman**. There are?

Mr. **Simpson**. FDA people actually come into the plants, and they also sample in the marketplace.

Senator **Lieberman**. That's reassuring. So what about—from what you have said, and, frankly, from what I have heard before what you said, a lot of the problem, insofar as there is a problem with ceramicware, is from imported items.

Mr. **SIMPSON**. That's correct, and that's why we want to put renewed and better emphasis on enforcement of the standards that already exist.

Senator **LIEBERMAN**. What is the mechanism there to enforce against imported ceramicware? What is in place now? Is there an inspection when they come in?

Mr. **SIMPSON**. I believe it is the Customs Service.

Senator **LIEBERMAN**. This is a replication of the same kind of situation Senator Reid and I faced with the pesticides on foods. We're beginning to set up a system that is pretty tough on domestic producers of fruits and vegetables, but then stuff comes in from abroad that nobody is looking at.

Mr. **SIMPSON**. I stand corrected. The FDA does conduct the inspections of products coming in from overseas. My understanding is that, because of shortage of personnel and the shortage of funds, the number of inspections are probably not what they should be.

Senator **LIEBERMAN**. Very small.

Mr. **SIMPSON**. Yes.

Senator **LIEBERMAN**. Maybe we should check on that. I remember on one case—what was the case with the banana? There were only two bananas over a period of years that were checked—imported bananas.

Mr. **SIMPSON**. I know they are checking more than that, because there have been a number of recalls of ceramic products that have come in from overseas that have gotten out into the marketplace and have been recalled because it was discovered that they had excess lead leaching.

Senator **LIEBERMAN**. I hate to discourage the creative impulse, but it seems to me that one of the other conclusions one might draw from your testimony is that some of the pottery, for instance, that is made by craftspeople may be more subject to this problem of leaching than the manufactured stuff.

Mr. **SIMPSON**. I think that is true. Again, I think that is particularly true overseas. In this country this problem is very well known. For example, there are societies and associations of hobby potters, and they are pretty well informed about the nature of this problem and how to cope with it.

Senator **LIEBERMAN**. All of us chip ceramicware at one time or another. Does that raise the possibility of leaching?

Mr. **SIMPSON**. No. That has no bearing on it.

Senator **LIEBERMAN**. It does not?

Mr. **SIMPSON**. No.

Senator **LIEBERMAN**. Okay. Thanks.

Mr. Weaver, just to understand in a little more detail what the problem facing your folks is, is the solder that is used by stained glass makers the same, for instance, that is used by plumbers? Or is it a special product?

Mr. **WEAVER**. It is very similar. It is 60/40, which can be used by plumbers. There have been people that have tried to use the lead-free solders and have found that it just does not work in our craft.

Senator **LIEBERMAN**. But there is a specific lead product that is made for use by the stained glass makers?

Mr. WEAVER. Yes. It is lead came.

Senator LIEBERMAN. Okay. What was in my mind is, if we accept your argument and we try to exempt you here, what can we do to make sure that the product that your folks are buying is not then bought by people that want to put it into pipes.

Mr. WEAVER. That I couldn't answer for you.

Senator LIEBERMAN. You are going to leave that problem with us.

Mr. WEAVER. I'd like to. [Laughter.]

Senator LIEBERMAN. But there is a separate product that is being sold. That is the important thing. You told me that, and that's came.

Mr. Heldman, I just want to clarify something you said, because I appreciate it if I got it clearly. You are basically supporting elimination of lead solder in food cans, and it sounded to me as if you were saying that basically within a year the industry could eliminate lead solder from domestic cans. Am I correct?

Mr. HELDMAN. It is difficult for us to put a time frame on it, but, as indicated in our statement, the combined associations—food processors and the can manufacturers—have taken the position of presently recommending that we cease production packing and distribution of foods in lead-soldered containers. It is up to us now to encourage the industry to move as quickly as possible to that goal.

Senator LIEBERMAN. Yes. I agree. And I thank you for that.

Let me go back to a line of questioning similar to the one I asked Mr. Simpson. First, baseline. How much—I know these are tough estimates, but just ball park—maybe I should ask it in percentages. What percentage of the food that is being sold in this country do you think is coming in from abroad? In other words, I'm concerned, from your testimony, that the problem of lead soldering in cans may be in imported food.

Mr. HELDMAN. We can't tell for sure. But, as I indicated in part of our testimony, we are working with the Food and Drug Administration currently to do a survey to get as much information of that type as possible. We think the results of that would be completed in about six to eight weeks. We'd be glad to submit that information.

Senator LIEBERMAN. I'd appreciate that. We would look forward to that.

I suppose there is no testing at the point of entry for an imported food, is there, because the food is in the can.

Mr. HELDMAN. Not that I am aware of.

Senator LIEBERMAN. Mr. Stanga, do you think that there is any possibility of phasing out the use of lead solder in the electronics industry? If so, what kind of time frame are we working on?

Mr. STANGA. Senator Lieberman, as a practical matter, we have not yet found—and it is in all likelihood the case that we will not find—substitutes for lead in tin/lead solder in our electronics soldering applications. There are some solders which are alloys that we are using right now in electronics manufacturing which do not have lead in them, but these are a very small percentage of the total solder that is manufactured for electronics purposes, and these are specialty applications which would not work in mass soldering applications. Of course, that is the mainstream use of solder in electronics.

The reason that it is difficult to find substitutes for lead in mass soldering is because of the physical properties that are required for the soldering process. The type of solder which the electronics industry employs in its manufacturing activities is referred to as eutectic solder. That is a very precise composition with precise metallurgical properties. That is a type of solder. It is a 63 percent tin/37 percent lead alloy which melts at a low temperature.

It is important for circuit board manufacturing so it won't damage the board when it is being made. Also, it goes directly from a solid state to a liquid state. There is no intermediate plastic phase. That distinguishes this type of soldering specialty application—that is, electronics soldering—from soldering in plumbing applications. In plumbing, the characteristic that is required for soldering to join two copper pipes is that the solder has to be plastic for a while. It has to go not instantaneously from solid to liquid, but it has to fill a gap.

When you join copper pipes, there is usually a little room. That's more the case then you would find if you were trying to do this with a circuit board, where you are not filling gaps so much as you are creating a bond for electrical transitivity or transfer.

So, because of the confluence of technical requirements for electronics manufacturing solder that all have to come together precisely—melting temperature, strength, ductility—we are not optimistic there will be a panacea substitute that will satisfy our needs in mass soldering.

Senator **Lieberman**. Is there work going on to try to find a substitute, acknowledging that lead is as toxic as everybody has agreed today?

Mr. **Stanga**. Yes, Senator Lieberman, there is. As a matter of fact, extensive research is being conducted both by electronics manufacturing companies that use solder, such as IBM, and solder manufacturers such as Litton's Kester Solder Division. For instance, I can speak in some detail about Kester's research. They have a sophisticated research and development lab where they test alloys of the various metals that might be amenable to soldering applications in various percentages and compositions. They test the thermal characteristics, the fatigue and wetting and tensile strength and ductility of all these different alloys that they work with.

In fact, as I said, some of these alloys are amenable for specialty soldering applications, but that is not the mainstream. Most of them would not be amenable to mass production of the electronics components that we need in our industry.

Senator **Lieberman**. Mr. Hilts, just a final question. Are the forms that you make made of lead?

Mr. **Hilts**. They are made of die-cast aluminum.

Senator **Lieberman**. I see. But obviously they are used with lead to make the sinkers and the weights.

Mr. **Hilts**. It would be a two-piece mold that you would hold in your hand with handles on it, and you would pour the lead into it and then open it up. It is as simple as that.

Senator **Lieberman**. Okay. Thank you all very much.

Thank you, Mr. Chairman.

Senator **Reid**. Senator Warner is the ranking Republican member of this subcommittee. He has been an outstanding participant in all the projects in which we have been engaged this year. He has asked that I enter a statement for him, which I do at this time, on this particular legislation. Also a statement from Senator Jeffords will be included in the record.

[The statements referred to follow:]

STATEMENT OF HON. JOHN W. WARNER, U.S. SENATOR FROM THE COMMONWEALTH OF VIRGINIA

Mr. Chairman, today we will hear from a long list of witnesses concerning two bills dealing with the regulation of lead. This hearing continues this Subcommittee's ongoing look at the health effects of lead exposure.

Mr. Chairman, this is an important subject, worthy of the Subcommittee's careful attention. Over the years, lead levels in blood have decreased significantly due to governmental efforts. However, there is more that can be done. I applaud the Subcommittee's efforts to make sure that additional harmful exposures to lead are curtailed or eliminated.

While I share the goal of reducing lead exposure, I am concerned about what I have heard about the impacts of the legislation to be considered today. It has been pointed out to me that S. 2637 in particular, through its ban of some products and regulations of lead content in others, goes far beyond simply minimizing exposures to lead. As currently drafted, this legislation appears to make the production of some important products impossible, even though their use causes little or no human exposure to lead. Moreover, the bill may have some detrimental effects on behavior we are trying to encourage, such as recycling. Finally, this bill may make impossible the manufacture of some items that are essential to our national defense—again, even though there are little or no human exposures.

Mr. Chairman, perhaps some of these consequences are unintended. It is my hope that this hearing will encourage further discussion of both the intended and unintended consequences of S. 2637. It is also my hope that the bill can be revised significantly, so that it will be more narrowly tailored to the goal of reducing lead exposure—without bringing essential economic activity to a halt.

Thank you, Mr. Chairman.

STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Thank you, Mr. Chairman, for calling this important hearing today. I wish to commend you, Sen. Lieberman and Sen. Bradley for the work you have done in developing the bills before us and for assembling the witnesses today.

Our recent hearing on the health effects of lead contamination revealed some stark evidence that elevated lead levels in blood can produce very damaging effects. Especially among groups of children who become exposed to lead, health effects and learning disabilities can be very troubling. For our young people to be put at a learning disadvantage in their early years, through no fault of their own or their family, is a situation that we must take very seriously. It is important that Congress take necessary steps to reduce lead exposure to individuals when it is likely to cause problems.

Although I am not currently a cosponsor of S. 2637 or S. 2593, I believe that each bill contains important provisions that should be enacted before the end of the 101st Congress. It has become clear that no one has a clear inventory of the many pervasive uses of lead in today's environment. While EPA and the industries have taken steps in determining the scope of lead's presence in commerce, many gaps in this knowledge remain. This situation should be improved.

We do not have a clear understanding of the amount of lead currently going into landfill and incinerators, nor are we fully aware of the consequences of disposal of lead products. Through recycling and product substitution, we should be able to reduce threats from lead disposal. Provisions of the bill regarding mandatory recycling of lead batteries, for example, would help reduce disposal problems. I understand that the bulk of lead batteries are already being collected, but there is little reason for not closing this loop completely.

There are some uses of lead which are highly suspicious as means for lead to be introduced into biological systems. Food containers, plumbing materials and newsprint pigments are examples that deserve to be examined very closely. Where there are substitutes, and where lead is likely to be a problem, I think we should move away from lead and toward the less-harmful alternative.

There appear to be certain population groups that may be at higher risk of lead exposure compared to the general population. Workers who handle lead and those exposed to lead-based paints come to mind. I know the sponsors of the bill are very interested in reducing existing exposures to such population groups.

Mr. Chairman, we have a full agenda before us today. Your work in bringing this issue to the attention of the Committee is commendable. I look forward to hearing from the witnesses and stand willing to work with you in developing a constructive and comprehensive system to reduce problematic lead exposures.

Senator REID. We have tried to make sure that everyone that wanted to testify has been able to. Of course, that is not always possible. Bob Buchwalter who is the general manager of a stained glass company has informed us of steps that his company has taken to maintain a safer environment for its employees. That will be made part of the record.

[The material referred to follows:]

CUMMINGS STUDIOS
Stained Glass

P. O. Box 427
North Adams, MA
01247-0427

4 [illegible]4-6578

NOTICE TO THE STUDIO

RE: LEAD ABATEMENT PROGRAM

We want to assure all craftspersons that the following actions are being implemented immediately...before the results of the air tests are known:

1. Work uniforms (shirt + trousers) will be provided.
2. Showers will be constructed (probably to be located in each restroom).
3. Lockers installed (probably located outside each restroom).
4. "Wet pads" will be available for use underneath all unzipping work.
5. Homosote table/bench tops are to painted.
6. Mandatory dust masks for unzipping, etc. (as provided now).
7. Color-coded small containers for chemicals.

To be considered after the results are received from the air tests:

1. Additional smaller HEPA vacuum for job site work as well as work in studio.
2. Air conditioner for production room.
3. Portable precipitator(s) with flexible arm for use at workbenches.
4. Further recommendations that may come from the report of Josepf LaMalva.

June 21, 1990

Bob Buckwalter
General Manager

cummings stained glass studios, inc.

Senator **Reid**. Also, for those in the audience who have been patient and listened to the hearing in its entirety today, or parts thereof, you should be advised that we intend to try to bring legislation on the floor this year. We will be happy to work with you. We have gotten some extremely constructive criticism today. We feel that there are some areas in the legislation as has been drafted that can be improved. We will certainly work with you and your staffs in that regard. But, as I indicated, we are going to try to move this legislation this year.

Thank you very much. The committee stands in adjournment.

[Whereupon, at 3:11 p.m., the subcommittee was adjourned, to reconvene at the call of the Chair.]

[Statements submitted for the record and the bills S. 2593 and S. 2637 follow:]

TESTIMONY OF
VICTOR J. KIMM
DEPUTY ASSISTANT ADMINISTRATOR
FOR PESTICIDES AND TOXIC SUBSTANCES
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL
OVERSIGHT, RESEARCH AND DEVELOPMENT
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

JUNE 27, 1990

Mr. Chairman and members of the Subcommittee, my name is Victor J. Kimm and I am the Deputy Assistant Administrator for the Office of Pesticides and Toxic Substances of EPA. I want to thank you for the opportunity to appear before you today to comment on two bills before the Senate, S. 2593 and S. 2637.

I testified before this Committee last March that EPA considers lead to be one of the nation's most toxic multi-media contaminants. We at EPA agreed with other witnesses at that hearing, from both the public and private sectors, that it is a significant health problem in this country, especially because of its impact on infants and children. EPA is also concerned about environmental contamination from lead. Nearly two decades ago, EPA recognized the serious and permanent damage lead can cause, and started taking aggressive actions which reduced risks associated with lead exposures.

The Agency undertook a massive effort to virtually remove lead from gasoline. Because of this and other important federal actions--including banning the use of lead in house paint, banning lead solder and lead pipes for drinking water systems, and encouraging the phase out of solder in cans containing food--blood lead levels have dropped dramatically. But we all are aware that, as levels have been decreasing, researchers have been finding harmful effects at blood lead levels previously considered safe. Based on new information, our threshold level for lead toxicity concern has declined steadily over the past decade. The experts agree that a large number of children are still at unacceptable levels of risk. Clearly, the lead problem is not yet solved.

You heard last March that the principal sources of immediate hazard to children today are a legacy of past uses. For decades, lead was a common constituent of paints, gasoline, and solders. Since lead is indestructible in the environment, exposure to previously deposited lead continues to cause a broad array of health and environmental problems. There is general agreement that these sources of highest risk demand priority attention. The principal pathways of these exposures are: (1) deteriorated lead-based paint, present in buildings, in dust and in soils; (2) soil contamination, most commonly from previous deposition by gasoline and paint--especially in urban areas; and (3) remaining sources of low-level but widespread exposures, particularly from drinking water supplies, because of in-place lead in plumbing and distribution systems.

Developing workable solutions to the lead problem is technically very complex, and current solutions are extremely expensive, particularly when they involve abatement actions such as removing old paint or plumbing from millions of individual homes, or cleaning up contaminated soil. The government must also consider that many abatement actions may impact the privacy of people's homes. And if not carefully done, some abatement efforts can actually increase exposures. Further, lead contamination comes from a variety of sources, which tend to be geographically dispersed. Finding workable solutions to the array of geographic problems is therefore difficult; solutions need to track the dispersed, geographical nature of the problem. We must target our efforts to concentrate first on those areas which present the greatest unreasonable risk to the largest numbers of people.

EPA testimony last March included a summary of the many and varied activities, both remedial and preventive, now underway across the Agency, which illustrate our recognition of the scope and seriousness of the problem. Agency efforts cut across program offices and often involve EPA regional offices and the states as well.

I will not repeat that detailed information, but only name the principal areas of current activity: reviewing/revising our ambient and new source performance air standards; promulgating standards, implementing existing statutory limits, and delivering training programs to protect drinking water supplies; working with the Department of Housing and Urban Development (HUD) on the abatement of exposures from lead in paint in buildings; pursuing an ongoing research program, including studies to evaluate soil exposures and "low tech" abatement procedures; limiting use and disposal of lead-contaminated sewage sludge; identifying major sources of lead in municipal solid wastes and the availability and environmental soundness of lead substitutes; controlling lead discharges to surface waters; and controlling corrosivity of drinking water.

EPA is committed to yet more aggressive activity to address this serious risk to our children. The Administrator and Deputy Administrator have made it a high priority within the Agency. As described in my March testimony, the Deputy Administrator has started a major initiative to develop a comprehensive, cross-media lead strategy to establish an optimal control strategy based on reducing unreasonable risks. The Agency is evaluating what additional steps we might take to address the continuing health and environmental risks from lead. This approach encompasses outreach to other agencies and to the private sector as well. We expect to deliver this strategy to the Deputy Administrator within the next several months.

EPA's lead task force is ensuring that the regulatory efforts conducted under different statutory authorities produce a unified and coherent approach to lead pollution problems, based on a common understanding of the health data. This group is also considering residual lead risks not adequately handled by existing standards, and how to work within and outside EPA to address these problems most effectively.

The strategy includes an evaluation of several risk-based pollution prevention initiatives. While certain uses of lead have markedly decreased due to government action, the total amount of lead used annually in the U.S. has not decreased in recent years as might have been expected after the phaseout of lead from gasoline, primarily because of increased demand for lead acid batteries. EPA will consider whether and, if appropriate, how we should reduce further unreasonable risks from lead by controlling its introduction into the environment. This work will explore, among other things, the feasibility of regulatory action to control unreasonable risks from lead uses, including reductions in the use of virgin lead; encourage safe recycling of lead-containing products where economically feasible; and/or encourage substitutes for lead, perhaps by eliminating uses of lead that present unreasonable risks. A related component is to look at current high exposure uses of lead and assess the need for additional controls. We are considering the desirability of screening proposed new uses of lead, in order to assess potential exposures before they enter commerce. These pollution prevention initiatives could be addressed under existing authorities in the Toxic Substances Control Act (TSCA) and other existing authorities.

EPA realizes that issues related to the control of unreasonable lead risks cross not only our own internal media boundaries; they also cross into areas where other agencies have legislated responsibilities and expertise. EPA has had an active role in assisting HUD on lead paint issues since 1988; we established a memorandum of understanding (MOU) in 1989 to formalize the agreement on areas of EPA technical assistance to HUD. The two agencies co-chair a task force on lead-based paint issues, to provide a federal forum for sharing information about programs and activities. Other members of the task force are from agencies within the Department of Health and Human Services (HHS) (Centers for Disease Control (CDC), Agency for Toxic Substances and Disease Registry (ATSDR) and National Institutes of Health (NIH)), and Occupational Safety and Health Administration (OSHA), Consumer Products Safety Commission (CPSC) and National Institute of Standards and Technology (NIST). Many sources of lead exposure from current uses (i.e, that are not related to abatement) involve consumer products; we are working with CPSC and FDA to avoid overlapping or conflicting policies regarding consumer, food, and cosmetics products.

HHS and HUD in particular are deeply involved in lead issues; each of these agencies is developing a lead abatement strategy. OSHA, the agency responsible for assuring the safety and health of lead abatement workers, is also working with HHS and HUD on lead abatement strategy. EPA staff have been working with their counterparts in HUD and HHS on these documents. EPA will seek to establish an agreement to coordinate and join efforts to develop a unified approach, and ensure that the Administration's lead program is comprehensive and based on the best available information on risk and risk reduction techniques.

EPA has also met with private sector organizations, including industry, public interest and labor groups. In talking with industry representatives, our message is we believe it is necessary to further reduce unreasonable lead risks and that we must have a heightened level of product stewardship from them if we are to succeed. EPA believes that the lead producing and consuming industries can offer valuable expertise. We are particularly interested in having industry (1) give us assessment data on lead products and exposure patterns; (2) generate research efforts to identify effective substitutes; and (3) develop cost-effective abatement technologies, such as coatings that might encapsulate lead paint on walls.

Industry's response has in general been one of cooperation and joint problem-solving. Most industry members seem to understand that it is in their interest to reduce risks from their facilities and products. Industry has offered EPA existing data from ongoing research; members have expressed a willingness to undertake additional research. The lead industry, along with the paint and coatings manufacturers, are discussing what role they might play with regard to the technical issues and costs associated with abatement efforts. This is understandably a tougher issue, since it involves past practices and products, but it is one they have agreed to discuss further.

We also intend to hold meetings with non-industry interested parties, e.g., labor and environmental groups, to hear their views about addressing the lead exposure problem. Based on initial discussions, EPA is optimistic that the goal of reducing lead exposures can be served through further discussions and cooperation with industry, environmentalists, and labor.

Now I would like to turn my comments more specifically to the two lead bills, S. 2593 and S. 2637. First, I would like to state that EPA fully endorses the general goal of these bills, to reduce lead exposures. We are also in general agreement with the research tasks for lead paint outlined in the bills; they reflect what EPA (with HUD, HHS and others) believes are the most valuable elements for developing a national program. However, the Administration does not support S. 2637 or S. 2593. EPA and HHS under existing authorities are moving appropriately to reduce unacceptable exposure to lead. We do not need additional legislation at this time.

S. 2637 outlines a broad set of research, evaluative and planning tasks to address lead paint abatement. While EPA thinks this bill addresses the most important issues, the Agency believes that current statutory authority is sufficient to address these concerns. Further, we have serious concerns about a number of implementation aspects of the bill. It gives enormous responsibility to EPA for this program, and we do not think that such a shift in existing roles is necessary. Some provisions are not entirely clear, for instance, how broadly to define contaminated soil. EPA is also concerned that Congress not mandate simultaneous analysis and implementation actions. We at EPA are convinced that a program of this magnitude requires a well thought out strategy. Without careful planning, there is a real potential for costly errors and even inadvertent increases in exposures. Participating agencies are conducting the appropriate analysis and setting priorities. EPA believes that we should continue with our current role and complete the analytic work before setting a large new program into motion.

S. 2593 focuses primarily on current uses, reducing or eliminating lead in a wide variety of products. We plan to consider most of these products in our strategy. However, EPA already has authority, under section 6 of the Toxic Substances Control Act, to impose a wide spectrum of controls, including a ban, on chemicals in commerce. To do this under TSCA section 6, EPA would have to make an "unreasonable risk" finding, which entails a careful assessment of the public health benefits and costs. We appreciate the flexibility in the lead paint removal provisions of this bill, but, as I noted earlier, any paint removal strategy should simultaneously consider soil contamination if it is to be effective.

A general concern with these bills is that they cover an extraordinary breadth and have tremendous resource implications across a number of activities, with varying impacts on reducing lead exposures. Yet there is no priority set among the numerous activities in terms of their risk reduction potential or administrative feasibility. Based on our experience with toxic chemicals, and especially asbestos, EPA is acutely aware of the need to allocate resources in dealing with these kinds of issues. As noted above, we are currently pursuing a lead abatement approach with other appropriate agencies to achieve reductions in elevated blood lead levels in children.

We agree that there may be certain products that cause high risk that we can single out for action. Our pollution prevention strategy is to sort out the highest priorities for control, so that we can control any unreasonable risks from these products. However, EPA's approach is to set priorities based on analysis, and subject its conclusions to notice and comment rulemaking. Some of the specific provisions of the two bills are too prescriptive and inflexible to allow EPA to choose among the many prescribed activities based on the unreasonableness of the risk.

Another comment on both bills relates to recycling. EPA is a strong proponent of recycling where it is economically feasible, and we welcome Congressional interest in promoting it. But we must ensure that we promote environmentally sound recycling. In the case of batteries, where we have a potentially confounding factor of smelter emissions, we recommend that we not mandate total recycling immediately, but allow for a longer phase-in period, to avoid shutting down some smelters as new and improved control technologies are identified and installed.

Finally, EPA is particularly troubled by the sections of S. 2637 that would revise the Clean Air Act and the Safe Drinking Water Act. In both cases, EPA has full and sufficient authority under the existing statutes and is well along in developing revised standards. The provisions would put numerical values for specific standards into legislation, which may not be wise or useful, and may conflict with the criteria contained elsewhere in existing authorities. Historically, Congress has left the task of picking numerical levels for standards to EPA under decision criteria established by law. In view of the complexity of these judgments, we continue to believe that such tasks are best performed by the Agency through rulemaking with adequate opportunity for input from all interested parties.

The drinking water standard is nearing completion. It has involved an exceptionally difficult and complex set of issues, as indicated by the over 3000 public comments and 250 Congressional inquiries we have received. We are in the final stages of revising the rule before promulgation, and think it will reflect the statutory intent based upon the best scientific and engineering judgment available today. The National Ambient Air Quality Standard (NAAQS) for lead is moving toward proposal. It too has raised complex issues, but ones that should be resolved through the rule-making authority and processes EPA uses for all of the NAAQS.

We know that dealing with it statute-by-statute has not been sufficient to solve the problem quickly. We have moved to a comprehensive strategy to correct the deficiencies of the media-by-media perspective within EPA and among federal agencies. Necessary reductions can be achieved under existing authorities administrated by EPA and other agencies. The most significant hurdles EPA and other federal agencies are experiencing have far less to do with authority than with our ability to gather and analyze sufficient data to map out a reasonable course of action, and identify appropriate cost-effective treatment or remedial technologies.

Setting priorities and establishing clear criteria are especially critical to a successful abatement program for the interrelated lead-based paint and soil problems. The distinction that I alluded to earlier between historic depositions and current uses of lead may be helpful here. Most cases of elevated blood lead levels in children today are attributable to historic depositions. Our biggest lead problems are also the most difficult, given the geographically dispersed nature of the problem and current gaps in our knowledge. Once the agencies reach some conclusions about what should be done, it may be appropriate to evaluate statutory authorities in the context of assessing which agency should take on which responsibility, and whether the authorities are adequate.

We would like to complete the integrated planning activities now underway before considering specific legislative changes. EPA encourages Congress' continued oversight of the Administration's progress in developing an integrated control strategy, but we urge Congress to delay enacting new legislation until we can make existing authorities work better.

To sum up, EPA is in full agreement with the seriousness of the problem of lead exposure in the environment and the public health goals of S. 2593 and S. 2637. As I have indicated, we do not believe any additional legislation is necessary or appropriate at this time. EPA applauds your efforts to address this very significant health problem. We trust that we can work together to insure that we provide the best possible protection of health and the environment by controlling any unreasonable risks associated with lead.

Thank you for the opportunity to speak to the subcommittee, and I would be happy to answer your questions.

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FOR RELEASE ONLY UPON DELIVERY

Testimony by

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on

LEAD POISONING PREVENTION

Before the

Subcommittee on Toxic Substances, Environmental
Oversight, Research and Development
Committee on Environment and Public Works
United States Senate

Room 216 Hart Senate Office Building

June 27, 1990, 9:30 a.m.

Good morning, Mr. Chairman and members of the Subcommittee. I am Dr. Vernon N. Houk, Director, Center for Environmental Health and Injury Control (CEHIC), Centers for Disease Control (CDC), and I am pleased to testify again before this Committee on behalf of the Department of Health and Human Services (HHS) on the subject of lead poisoning prevention. As I said in my testimony on March 8, lead poisoning remains the most common and societally devastating environmental disease of young children. The tragic consequences of this environmental disease on our children are all the more deplorable when one realizes that they are preventable.

HHS has a long history of lead poisoning prevention activities. Many of these are relevant to the legislation being considered today. In my testimony of March 8, I reviewed the activities of a number of HHS components, including the Agency for Toxic Substances and Disease Registry (ATSDR), the National Institute of Environmental Health Sciences (NIEHS), the Health Resources and Services Administration (HRSA), and CDC. Today I would like to update you on our activities that relate to S. 2637 and S. 2593.

o Lead Poisoning Prevention Grant Program - The availability of $2.5 million from CDC to support childhood lead poisoning prevention programs in States, counties, or cities with a demonstrated childhood lead poisoning problem was announced in the Federal Register on April 12, 1990. This grant program was authorized by the Congress in P.L. 100-572, the Lead Contamination Control Act of 1988. We expect money to be awarded within the next 3 months to three to six programs. These funds will allow screening of around 90,000 children with environmental investigation and assurance of medical and environmental follow-up for those who are found to be poisoned from lead exposure. These grants will also be used for education of the public and health care professionals about prevention of childhood lead poisoning.

- CDC Lead Statement - A committee of non-Federal experts has been appointed by HHS Secretary Sullivan to recommend revisions in the 1985 CDC statement, Preventing Lead Poisoning in Young Children. Given the growing consensus in the medical and scientific communities that there are adverse effects of lead on children at blood lead levels below 25 micrograms per deciliter (ug/dl), the development and dissemination of this revised statement is one of our highest priorities. The committee will meet in the next few weeks.

- Laboratory Proficiency Testing Program - Since 1972, CDC has been involved in administering a proficiency testing program for blood lead and erythrocyte protoporphyrin (EP) measurement. This program is currently a collaborative effort among CDC, HRSA, and the University of Wisconsin. Through this program, on a monthly basis, participating laboratories, public and private, evaluate how well they measure blood lead and EP levels. Laboratories that perform poorly receive technical assistance. Several hundred laboratories participate in the program on a routine basis. Laboratories can use the results they obtain from participation with this program to comply with the Occupational Safety and Health Administration (OSHA) requirements, and results from this program may be used for decisions on laboratory reimbursement by the Health Care Financing Administration (HCFA) when the final rule updating the Clinical Laboratory Improvement Act of 1967 goes into effect. In 1972, we knew of only three laboratories in the United States that could accurately measure blood lead. As a result of this program and CDC's technical assistance, there are now several hundred.

- Epidemiologic Studies - CDC is evaluating data from screening programs and other sources that will improve the effectiveness and efficiency of childhood lead screening efforts. For example, CDC is continuing to work with Chicago and New York City to evaluate the data they have collected as a part of their routine childhood lead poisoning activities. CDC is working with other screening programs to improve their data collection, so that collected data will be more useful in evaluating efficacy of different interventions. CDC also has a long history of studies that relate blood lead levels to sources of lead exposure. We have conducted numerous studies of the contributions of soil and dust lead to blood lead in smelter communities, and we recently completed a study of the contribution of water lead to blood lead levels in Hawaii. These studies will help develop strategies and recommendations for corrective actions to protect our children.

- **National Surveillance** - CDC is continuing to work with the Association of State and Territorial Public Health Laboratory Directors and the Council of State and Territorial Epidemiologists (CSTE) to promote national surveillance for elevated blood lead levels. The CSTE has passed a resolution strongly encouraging its member agencies to make elevated blood lead levels a notifiable condition and to institute surveillance of elevated blood lead levels in all age groups. Within the next 2 months, CDC expects to award cooperative agreements to three State health departments to develop the capacity to do blood lead level surveillance.

The feasibility of developing national surveillance for elevated lead levels is illustrated by CDC's National Institute for Occupational Safety and Health (NIOSH) efforts to develop a system for reporting of elevated blood lead levels in workers. NIOSH receives reports from nine State Health departments that provide data about numbers of workers with elevated blood lead levels and industries in which lead poisoning is occurring. The States with surveillance systems also ensure follow-up of the affected workers. In 1988, 4,804 workers in seven States were reported to have blood lead levels of 25 ug/dl and greater. All of the more than 500 who had blood lead levels above 50 ug/dl were removed from the exposure situation as required by OSHA. Follow-up activities according to the individual States' regulations have been completed for the remainder.

- Worker Safety - CDC's NIOSH has continued to work with the Department of Housing and Urban Development (HUD) and the Occupational Safety and Health Administration (OSHA) to define the risks of lead poisoning to abatement workers and their families, recommend safe work practices, to assist in the development of guidelines for workers involved in testing and abatement, and to develop a curriculum for training abatement workers. NIOSH also continues to perform health hazard evaluations; between 400 and 500 requests for these evaluations are received each year. About 5 percent of these deal with lead or lead compounds. NIOSH is providing technical assistance to evaluate worker lead exposure from removal of paint from bridges in two States -- Connecticut and Louisiana.

- Consultation with others - CDC also continues to work closely with the Environmental Protection Agency (EPA), HUD, the National Institute of Standards and Technology, and other Federal, State, and local agencies, including our sister agency the Food and Drug Administration, as well as the American Public Health Association, the American Academy of Pediatrics, the media, parent groups, and others in the private sector on issues relevant to childhood lead poisoning prevention and environmental lead abatement.

I would like now to address the specific bills under consideration by the Subcommittee. HHS fully supports the intent of both S. 2637 and S. 2593 to prevent unacceptable exposure to lead by reducing the amount of lead in the environment. However, the Administration does not support S. 2637

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or S. 2593. EPA and HHS, under existing authorities, are moving appropriately to reduce unacceptable exposure to lead. We do not need additional legislation.

In addition, the bills propose authorities for EPA which would duplicate current activities of various agencies of HHS. In particular we note in S. 2637, that proposed sections 408(a), (c), (d), (i), and (j) would duplicate activities CDC has conducted for years.

As I discussed before this Subcommittee in March, lead abatement, including the removal of lead paint from homes and other structures like bridges and water towers, as well as lead contaminated soil removal, continues to be a hazardous occupation. In fact, lead abatement activities have been referred to as the "urban lead mine." The Occupational Safety and Health Administration (OSHA) is the agency responsible for assuring the safety and health of lead abatement workers. At present, employers must comply with OSHA's construction industry standard regulating worker exposure to lead. OSHA has recommended however that employers comply with the more comprehensive general industry standard. As the amount of lead removal from the environment increases, safety issues for those workers involved and their families must be carefully considered. CDC's NIOSH is already providing assistance in the development of worker safety guidelines for OSHA and HUD, and will continue to be available to them, the States, and others for consultation and technical assistance.

As I said during my previous testimony, how the removed lead is disposed of becomes critically important. When we remove lead from buildings, etc., we are in effect concentrating this hazardous substance; therefore, agreed upon procedures for its safe disposal are critical to prevent widespread dispersal throughout the environment. Once lead has been dispersed in the environment, it is extremely difficult and costly to remove.

Accurate blood lead measurements are essential for the diagnosis and treatment of lead poisoning. Allow me to again review some of our work in this area. CDC, recognizing the importance of laboratory performance, has administered a blood lead proficiency testing program since 1972, and is continuing and strengthening these efforts. Our work in evaluating and enhancing laboratory proficiency is also linked with the categorical grant program I mentioned earlier and with efforts to establish national surveillance for elevated blood lead levels. Continued responsibility for the blood lead proficiency testing program and enhancing laboratory blood lead testing capacity are high priorities at HHS and CDC, and will continue to remain so. As stated earlier, this activity has had major success; the number of laboratories with demonstrated ability to measure blood lead has increased from three in 1972 to over several hundred.

Similarly, HHS and CDC have considerable expertise in conducting epidemiologic studies of lead exposure, including studies relating sources of lead to blood lead levels. The strong relationships between

CDC and State and local health departments, schools of public health, and lead screening programs have been extremely important in establishing collaborative efforts to conduct such studies. Our studies and expertise in this area have contributed to the understanding of the contributions of lead from soil, dust, paint, water, foods, and other sources to the problem of lead poisoning. Such studies remain an area of high priority at HHS and CDC and clearly belong in the Nation's health agency. In addition, they have been the basis of formulating specific intervention strategies.

The grant program authorized under the Lead Contamination Control Act (P.L. 100-572), for which the '91 Budget requests $3.9 million to implement, also requires HHS to educate the public about lead hazards. An integral part of this program is community outreach efforts and professional education. This authority too should remain with HHS.

The proposal for a restriction of lead contained in S. 2593 and S. 2637 also reduces the availability of lead to children and others. CDC supports this intent. However, many of the areas covered in S. 2593 are the responsibility of the Food and Drug Administration (FDA) within HHS. CDC defers to FDA on these topics (such as lead in food, food containers, and cosmetics). FDA will submit detailed comments on both bills to the Subcommittee separately. CDC defers to EPA on the issue of lead in batteries, restrictions on other products, and the development of more efficient, cost effective, and safe methods for removing lead from the environment, as well as measuring lead in the environmental media. We object to the provisions in S. 2637 that give to EPA activities conductd by CDC for many years.

While I am pleased to note this Subcommittee's concern about lead, I hope this will translate into support for our current approach and ongoing activities to improve the Nation's lead poisoning prevention efforts and to protect the health of the Nation's children, workers, and their families.

This concludes my testimony. I am happy to answer any questions.

ALLIANCE TO END CHILDHOOD LEAD POISONING

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Testimony of
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UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE
before the
UNITED STATES SENATE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
SUBCOMMITTEE ON TOXIC SUBSTANCES,
ENVIRONMENTAL OVERSIGHT, RESEARCH AND DEVELOPMENT
Hart Senate Office Building, Washington, D.C.
June 27, 1990 at 9:30 A.M.

Good morning, Mr. Chairman. I am Herbert L. Needleman, M.D., Professor of psychiatry and pediatrics at the University of Pittsburgh School of Medicine. I am also a member of the Academy of Pediatrics Committee of Environmental Health, and the Institute of Medicine of the National Academy of Sciences. I am happy to appear before you again, representing the Alliance to End Childhood Lead Poisoning, a group that has formed since my last testimony before this Committee. We are a group of scientists and citizens who, because we recognize the truly terrible dimensions of this disease, and its human and societal costs, have joined together to put and end to it. We firmly believe that this can be done, and that 10 years from now lead poisoning can, like smallpox, be a disease of historical interest. Twenty-two years ago, when the W.H.O., lead by Dr. Donald Henderson, set out to eliminate smallpox as a worldwide killer, they were greeted with skepticism from many quarters, including the Executive Director of W.H.O. Today, there is a plaque on the wall of the Assistant Secretary of Health Dr. James Mason marking the tenth anniversary since the last report of a case of smallpox. These pioneers were treated in the same way as were the people who called attention to the effects of lead and who asserted that the disease was completely preventable. Lead poisoning, one of the most important childhood diseases, is totally preventable.

I want to congratulate the members of this committee for the pioneering steps you are taking to bring this disease under control. This bill is a marvelous beginning. I am sure that you will hear from others today, reasons why this legislation is scientifically unsound, unnecessary, and even economically unwise. Perhaps my experience with these arguments will be of some use to the Committee.

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Herbert L. Needleman, M.D.

I entered this field because at the time I was a pediatric house officer, childhood lead poisoning seemed both important and tractable. It is completely a man-made disease, and man can control it. After I had studied the disease for a little while, I wondered, like many others, why such an easy problem was still around. Lead was easy to identify, we knew plenty about what it did, but not much progress had been made in prevention.

I examined the reasons for this, and found five. In pursuing the important path you are studying, it may be useful to know some of the potholes in front of you.

Listed here are five reasons for lack of progress in preventing childhood lead poisoning.

1. Lead poisoning was thought to be a disease of poor minorities alone. And poor minorities don't have much muscle. Somehow this misrepresentation became transmuted by some to mean that it was a disease of poor mothering. If mothers only took better care of their children, this wouldn't happen. Once this was concluded, there was little reason for any sense of urgency or responsibility. But the facts are that all children in the United States, white or black, rich or poor, are at risk for lead poisoning.

2. Many believed that with the passage of the Lead Paint Legislation, and the removal of lead from gasoline, the disease had disappeared. Many pediatric centers stopped testing for lead, their house officers stopped thinking about it, and they stopped making the diagnosis. I have lectured before groups of pediatricians at teaching hospitals, and been told that they don't see lead poisoning any more. When I asked how many had ordered a blood lead test in the past month, no one responded.

3. The fact that this is a low technology disease. It doesn't thrill like organ transplants or gene switching.

4. The sluggish response of some areas of the government. HUD is egregious in this respect, but others share the blame as well.

5. Finally, the tireless work of the lead industry must be mentioned. They have labored ceaselessly to conceal, obscure or minimize the evidence that lead is a ubiquitous, silent toxin, and that it does its damage at low doses. You will undoubtedly hear some of that today.

This is not a new story. In 1922, lead paint was banned in Brisbane Australia, and similar bans were imposed in Great Britain, Spain, Sweden, Belgium, Cuba and Greece in the 1920's. It was 50 years later that legislation was passed in the US Congress. That 50 year gap is no accident. It grew from the industry's assiduous campaign to diminish awareness about the dangers to children from lead. It is hard for someone who has treated children with lead poisoning, who has followed and evaluated them, who knows that these children will never graduate from high school, go to college, even attend ordinary non-remedial classes, or make a good living to talk about this unemotional terms.

In 1947, the Secretary of the Lead Industry Associates, the principal trade organization for lead users, gave an address to the Congress of Industrial Health. Although this individual, Mr. Felix Wormser, was not a physician, he was not at all hesitant to state that most of the diagnoses of childhood lead poisoning were incorrect, and that childhood lead poisoning was a rare phenomenon. He apparently was not inhibited by statements to the contrary from distinguished pediatricians like Randolph Byers and Charles Mckhann, but drew his support from industry-supported lead academicians. This practice has continued until today, with arguments virtually identical to those of 40 years ago. Only the names of the players have changed. This Committee and the American public have every right to listen to these people today with the appropriate dose of skepticism.

Let me once more congratulate you on this pioneering start to eliminating this disease. This is a truly historic beginning. I offer to the Committee any assistance from myself and the Alliance to End Childhood Lead Poisoning.

American Academy of Pediatrics

TESTIMONY

BEFORE THE

UNITED STATES SENATE

SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT, RESEARCH AND DEVELOPMENT

OF THE

ENVIRONMENT AND PUBLIC WORKS COMMITTEE

ON

LEAD POISONING

Presented by:

Lynn R. Goldman, M.D.

June 27, 1990

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Good morning Mr. Chairman. I am Lynn R. Goldman, M.D., a member of the Committee on Environmental Hazards of the American Academy of Pediatrics and here today on the Academy's behalf. I am also the state Environmental Epidemiologist for California and responsible for California's Childhood Lead Poisoning Program. I am an expert in environmental epidemiology and have published extensively in the areas of environmental health and lead. The Academy, whose 39,000 members are committed to the promotion of infant, child and adolescent health, welcomes this opportunity to once again appear before this Subcommittee to discuss the impact of lead at low doses on the welfare of children, and to lend its support to two bills: S. 2637, "The Lead Exposure Reduction Act of 1990" and S. 2593, "The Lead Ban Act of 1990". We are concerned about the epidemic of undiagnosed lead poisoning in this country and recognize it as one of the most important public health problems in the United States. It is important to urgently address this problem which is so harmful to the health and educational potential of our children. The approaches proposed in these bills are vital steps towards a future free of lead poisoning not only for our children, but also for their children.

In today's remarks, I will make the following points: (1) Lead poisoning is one of the most serious environmental health problems in the United States today; (2) Lead poisoning is common; and (3) Lead poisoning is completely preventable.

When the Academy testified before this body last March, the toxicity of lead to children was reviewed in great detail. The Subcommittee should note two very important facts: (1) Lead is one of the best understood toxic substances and the only one with proven harm to significant numbers of children; and (2) once deposited in the environment, lead does not break down and is not easily removed. Further delay in controlling lead exposures will only result in increased levels in the environment, increased numbers of children harmed, and, eventually, in increased expense to correct the problem.

There is a concurrence of scientific opinion about the toxic effects of lead on children. Twelve studies conducted over the last several years -- studies using state of the art epidemiologic methods, measurements of cumulative exposure to lead, and sensitive measures of intellectual functioning and behavior -- were recently summarized by Dr. Herbert Needleman in an article published in the New England Journal of Medicine. It is striking that these studies, performed by different researchers with different populations of children and different scientific methods, found consistently lowered IQ levels with exposures to very small amounts of lead. While it is difficult to prove cause and effect using epidemiologic studies, the concurrence of several carefully designed studies and the consistency with results of animal studies has led to a consensus among scientists that the results are valid.

Studies also indicate that other important detrimental effects of lead on the brain functions of children result in behavior problems including attention deficits and hyperactivity. Such behavioral problems are frustrating for children and their parents and are difficult for the medical and educational systems to manage. Even with long-term educational and psychologic intervention these children are often unable to fulfill their potential and to adjust properly to society. It is far preferable to prevent these problems.

Although the scientific evidence points to a small shift in average IQ scores for children, there are serious consequences not only for the individuals but also for society. A study, published in the New England Journal of Medicine last January, followed elementary school children with highest levels of lead in teeth and evidence of lowered IQ and poor classroom behavior into adulthood. They were seven times more likely to fail to complete high school and six times more likely to have reading disability as adults than those who had lowest tooth lead levels. The impact on society of the small shift in IQ scores is estimated to amount to a fourfold increase in children with an IQ less than 80 and a halving of the number of children with IQ's greater than 125. Therefore, this is a problem not only for our educational system, but also for the future of our nation as we compete in a highly technological world.

The Agency for Toxic Substances and Disease Registry (ATSDR) recently presented a report to Congress that estimated the full impact of this epidemic of childhood lead poisoning. Because there can be individual variability in both exposure and response to a toxin, and because there are variable levels of environmental contamination, it is considered sound public health policy to set exposure limits to a toxic substance well below what is called the Lowest Observed Adverse Effect Level (LOAEL). Based on recent studies, the ATSDR concluded that lead is neurotoxic to children at levels as low as 10-15 ug/dl (micrograms per deciliter) -- well below levels once thought safe. It is estimated that 400,000 children are born with blood lead at these levels each year and between three and four million American children now have blood lead levels at or above that range. Studies that my colleagues and I performed in neighborhoods in Oakland and Los Angeles, California confirmed these estimates: 15-20% of children under the age of six had blood lead levels of 15 ug/dl or above. Lead is the only toxic substance to which we knowingly allow our children to be exposed above the lowest observed adverse effect level. Contrast this situation with the efforts that are made to eliminate exposure to other toxic substances. With lead, we have not only positive animal studies but also positive epidemiological studies. Yet there are millions of children continuing to be exposed to lead above the lowest observed adverse effect level. There is no evidence for a level that is safe and no margin of safety for current levels.

Lead poisoning is completely preventable. By the time a diagnosis is made, it is too late to prevent the neurological consequences. Later, it is not possible to say whether the child's IQ was lowered by lead or whether a learning problem was due to lead exposure. Higher social standing and income levels do not protect children from lead exposure. We see cases with increasing frequency in which refurbishment of older housing by upper middle class families resulted in lead toxicity. In fact, many middle class children have potentially dangerous blood lead levels.

The most immediate prescription for the problem is to reduce the amount of lead contaminating food, water, air and the environment of children. Every effort must be made to find acceptable replacements and substitutes. In many cases the replacements are readily available and inexpensive. The Lead Exposure Reduction and Lead Ban Acts of 1990, which would restrict the innumerable uses of lead that expose children, can effectively stop this wasteful and tragic epidemic. Such programs must be backed up with effective enforcement strategies because, unfortunately, voluntary efforts to reduce lead uses have not been forthcoming or effective.

An additional necessary remedy is the removal of lead from homes and play areas. The actions prescribed in the Lead Exposure Reduction Act are prudent, reasonable and long overdue. Research has shown that abatement done incorrectly can create a more hazardous environment for children in the homes and for abatement workers, making guidelines and improved technology, as proposed in the bill, very necessary. A sustained and committed effort across government agencies, using state of the art technology and supported by research efforts will result in an environmental cleanup that will prevent lead toxicity to children.

Our children are an investment in the future. Increasingly our competitiveness in the world market requires that we maximize our intellectual resources. There is no way our medical and educational systems can address this issue without measures to prevent lead toxicity. We must provide for a cleanup of the lead that is already present and we must stop the introduction of lead sources into the environment.

As pediatricians, we urge that you take all the appropriate actions to clean up the lead problem. These actions include: cleaning up the lead paint and lead dust in the home, removing the lead solder from the house plumbing, removing the lead from the air the child is breathing, assuring that lead is not present in canned foods or pottery that the family is using. We need your assistance. You are the only ones who can see that these changes occur.

Consortium for
Citizens with
Disabilities

TESTIMONY

BEFORE THE

SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT, AND
RESEARCH AND DEVELOPMENT
OF THE
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ON

S.2637, THE LEAD EXPOSURE REDUCTION ACT OF 1990

AND

S. 2593, THE LEAD BAN ACT OF 1990

RESPECTFULLY SUBMITTED
BY THE

PREVENTION TASK FORCE OF THE CONSORTIUM FOR CITIZENS WITH DISABILITIES

REPRESENTING THE FOLLOWING MEMBER ORGANIZATIONS

AMERICAN ASSOCIATION ON MENTAL RETARDATION
AMERICAN ASSOCIATION OF UNIVERSITY AFFILIATED PROGRAMS FOR PERSONS
WITH DEVELOPMENTAL DISABILITIES
ASSOCIATION FOR RETARDED CITIZENS OF THE UNITED STATES
EPILEPSY FOUNDATION OF AMERICA
LEARNING DISABILITIES ASSOCIATION OF AMERICA
NATIONAL HEAD INJURY FOUNDATION
NATIONAL HEAD INJURY FOUNDATION SURVIVORS COUNCIL
UNITED CEREBRAL PALSY ASSOCIATIONS, INC.

Presented by:
Audrey McMahon
LDA

INTRODUCTION

Senator Reid, it is an honor to be here today representing the Consortium for Citizens with Disabilities Prevention Task Force. The CCD is a coalition of approximately 60 consumer, parent, professional, and advocacy organizations who actively work to promote the rights of, and ensure services for persons with disabilities. The CCD Prevention Task Force consists of groups such as my own, the Learning Disability Association of America, the Association for Retarded Citizens of the United States, the American Association of University Affiliated Programs for Persons with Developmental Disabilities, the Epilepsy Foundation of America, and the National Head Injury Foundation as well as many others who are listed on the cover sheet of our testimony.

The CCD Prevention Task Force is very pleased with both your efforts and the efforts of Senator Bradley and others to introduce legislation that has the potential to have a very positive impact on the lives of many individuals. The prevention of disability is a major goal of all disability-related organizations. This goal does not negatively reflect on those persons who have disabilities, but only strives to prevent future disability.

Senator Reid, we were especially heartened to see that your interest in the issue of lead includes a concern for the presently greatly underfunded Lead Poisoning Prevention Program administered through the Centers for Disease Control. We are very grateful for your letter to Senator Harkin, Chair of the Senate Appropriations Committee, requesting an appropriation, to the full authorization level, of $24 million for this critical program that, if adequately funded, can do much to help prevent some of the negative effects of exposure to lead in young children.

BACKGROUND

Lead poisoning is a preventable cause of death, mental retardation, cognitive and behavioral problems, and sensory and other disabilities in children. Unfortunately, it has been an area of concern that has uniquely been neglected in an era that boasts of many major achievements in preventive medicine. In light of the problems caused to all children who come into contact with lead, imagine the even more negative effects that it can have on a child who already has a disability for another reason. In this case, exposure to lead is a secondary cause of disability and one more obstacle to be overcome. These children are placed in a "double jeopardy" situation that every effort must be made to avoid.

The Agency for Toxic Substances and Disease Registry estimates that between 3 and 4 million children in the United States, under the age of six, have blood levels above a level associated with the onset of early detectable adverse effects.

Unfortunately, it is the very young and the very poor who are most often victims of problems related to lead in the environment. Dr. Alfred Baumister often speaks of the "new morbidity" which involves environmental and socioeconomic variables that lead to the greater occurrence of mental retardation and other disabilities among "the poor" than among "the rich". Because of this, and because of the many sources of lead in the environment, it is critical that a coherent, coordinated, well-planned, and well-monitored program to reduce exposure to lead is required. It appears that the legislation under consideration here today could lead to that type of program if it is effectively implemented and enforced.

Lead Poisoning is often thought of only as an problem in urban areas with old housing stock, a proliferation of heavy industry, and poor air, water, and soil quality due to heavy traffic and other sources of pollution. However, this is also a problem in rural areas where a great many individuals live in abject poverty in housing stock as old, if not older, than that found in urban areas. Also, too often in rural areas, programs to educate persons about the issues of lead or to provide them with lead abatement means are not available.

Finally, as more and more middle class families turn to older housing for either affordability, location, or aesthetic reasons, lead poisoning will become more of an equal opportunity disabler of the young. Old houses need to be rehabilitated and too often this rehabilitation releases lead into the atmosphere and the soil.

RECOMMENDATIONS

Well coordinated programs that use the expertise of a variety of governmental agencies are certainly required. However, it is important to ensure that the agencies, which purport to have experience, actually have accomplished something with their programs. For example, the Department of Housing and Urban Development has been concerned with the issue of the abatement of lead paint for almost 20 years, however, in our opinion, their true accomplishments have been few and far between. The emphasis in S.2637, the "Lead Exposure Reduction Act of 1990" on coordinated efforts by a variety of governmental agencies is a positive one. We feel that it is critical that one agency, probably the Department of Health and Human Services, should be the overall control center for all abatement and reduction and education efforts. The establishment of one or more Centers for the Prevention of Lead Poisoning at specific colleges or universities is a good idea. However, there should also be a Center for the Prevention of Lead Poisoning at the federal level.

The Lead Poisoning Prevention Program at CDC, which I mentioned earlier, is an example of a critically important program that has not been adequately supported by the Congress and or the Administration. The authorization level for this program for last year was $24 million dollars, the appropriation received was for not quite $4 million. While this was quite good for a program that was identified as "a new start", it is not enough to ensure an effective program. For this year, the Administration budget requested level funding for the program. Is this another example of a kinder gentler nation?

The Prevention Task Force of the CCD is concerned with the unresolved issue of the dangers of lead in the environment in its many forms. We can only hope and pray that legislation such as those pieces under consideration here today can be implemented in a manner which will offer all our children the chance at a life, free of disease and disability.

We would be very willing to carry your message to whomever we can in order to build support for a coordinated effort to remove lead and other potentially deadly substances from our environment.

Thank you for the opportunity to speak with you today. We will be submitting much lengthier testimony in writing. As I said before, if there is anything that we can do to assist you in your efforts, please let us know. The disability community wants to prevent disability and we want to ensure that any legislation that does pass is the best possible legislation with the greatest potential for success.

LEGISLATIVE INFORMATION

TESTIMONY
OF THE
NATIONAL EDUCATION ASSOCIATION

ON THE

LEAD EXPOSURE REDUCTION ACT OF 1990 (S. 2637)

AND THE

LEAD BAN ACT OF 1990 (S.2593)

SUBMITTED TO THE

SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT,

RESEARCH AND DEVELOPMENT

OF THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

U.S. SENATE

PRESENTED BY ROBERT CHASE

VICE PRESIDENT

NATIONAL EDUCATION ASSOCIATION

JUNE 27, 1990

KEITH GEIGER, President
ROBERT CHASE, Vice President
ROXANNE E. BRADSHAW, Secretary-Treasurer

DON CAMERON, Executive Director

Mr. Chairman and Members of the Subcommittee:

I am Robert Chase, Vice President of the National Education Association, which represents 2 million professional and classified education employees in the nation's elementary, secondary, vocational, and postsecondary schools. I appreciate the opportunity to present our views on a critical health issue that threatens America's children: lead poisoning.

In September 1989, the President and the nation's governors endorsed six National Goals in Education. The first of these goals states "By the year 2000, all children in America will start school ready to learn." The second goal recommends increasing the high school graduation rate, while other goals deal with increasing student competency in schools.

The achievement of these vitally important goals may well be jeopardized by the insidious effects of lead poisoning on our nation's children.

The Environmental Protection Agency (EPA) estimates that as a result of lead contamination in drinking water, each year some 29,000 children require medical treatment; more than 240,000 children experience some irreparable loss of intelligence; some 82,000 children risk diminished physical stature; another 82,000 risk blood disease. Indeed, the hazards of lead contamination begin before birth. EPA estimates some 680,000 fetuses are at risk each year because of pregnant women's exposure to hazardous levels of lead in drinking water.

The March 1990 report by the Environmental Defense Fund, Legacy of Lead: America's Continuing Epidemic of Childhood Lead Poisoning, confirms and reiterates the danger to children from lead. According to the report, when one takes into account all sources of lead contamination -- drinking water, peeling paint, gasoline, dust/soil, smelters, and food -- an estimated 3 to 4 million children under age six have blood lead levels above 15 micrograms per deciliter (ug/dl). The Centers for Disease Control reported that the 1988 incidence of lead poisoning -- defined as 25 ug/dl or more -- is almost twice as great as viral meningitis; 2.5 times greater than mumps; and four times greater than whooping cough or measles. Since the incidence of lead poisoning is based on a very limited number of lead screening programs in existence, this data probably greatly underestimates the scope of the problem.

According to the Legacy of Lead, "Lead's neurotoxic effects at relatively low exposure levels include decreased intelligence, short-term memory loss, reading and spelling under-achievement, impairment of visual-motor functioning, poor perceptual integration, poor classroom behavior, and impaired reaction time. Children and fetuses are especially susceptible to these effects, because their neurologic systems are rapidly developing."

Indeed, studies by Dr. Herbert Needleman of the University of Pittsburgh of first- and second-grade children in the Boston area found that children with high lead levels were almost four times more likely to have an IQ below 80 than those with low lead levels. Follow-up studies of these children found that the high-lead group had lower IQ scores, needed more special academic services, and had a higher rate of school failure. In later years, the high-lead students had a 7.4 percent higher dropout rate and a 5.8 percent higher rate in reading disabilities than comparable students with low lead levels.

Exposure to lead has many adverse effects on persons of all ages, including decreased hemoglobin, destruction of red blood cells, and anemia; it can damage the kidneys, impair nerve function, and cause heart damage, increasing the risk of strokes and heart attacks.

There has been a great deal of progress in controlling the sources of lead contamination -- restricting the use of leaded gasoline, lead-based paint, and plumbing solder. Still, more must be done. While severe lead poisoning can be treated through chelation therapy -- a process in which a drug binds itself to lead in the body for easier excretion -- chelation cannot repair neurologic damage, nor can it reach lead concentrated in bone, teeth, the brain, or kidneys. Prevention is clearly the most effective treatment.

NEA has been active for many years in efforts to reduce exposure to lead, with an emphasis -- in recent years -- on reducing exposure to lead in drinking water, especially in the schools. At present, more than 42 million Americans are exposed to drinking water with lead levels that exceed 20 micrograms per liter (ug/l). Between 20 and 50 percent of the total lead exposure in children may be attributable to drinking water.

We were instrumental in the 1988 enactment of the Lead Contamination Control Act (LCCA), P.L. 100-572, that authorizes funds to states to assist schools with lead in drinking water testing programs. However, we are disappointed that no federal funds have ever been appropriated for this state grant program. The LCCA also authorized funds for the Centers for Disease Control to assist in lead blood screening of children. In FY90, the first $4 million was appropriated for this program.

NEA also assisted in the preparation of an EPA document entitled Lead in School's Drinking Water, released in January 1989. The publication is designed to provide schools guidance in testing and methods for reducing or eliminating lead in schools' drinking water.

One major benefit of the LCCA was the restriction of water coolers. The statute directed the Consumer Product Safety Commission (CPSC) to require manufacturers of drinking water coolers that were identified as having lead-lined tanks to recall, repair, or replace such water coolers. CPSC negotiated a consent order with the Halsey-Taylor division of the Scottsman Group, announced June 1, 1990, under which all water coolers manufactured by the company prior to April 1, 1979 which contribute more than 20 parts per billion (ppb) of lead will either be replaced or the school provided a refund of its purchase price.

In addition, many schools have taken steps to test for and reduce or eliminate lead contamination in school plumbing systems. And yet, a comprehensive program to eliminate lead contamination from all sources must be national in scope.

NEA strongly supports the Lead Exposure Reduction Act of 1990, S. 2593, authored by Senators Reid, Lieberman, Bradley, and Moynihan, and the Lead Ban Act of 1990, S. 2637, authored by Senator Bradley. These companion bills would be a dramatic step forward in efforts to eliminate lead contamination nationwide. The Lead Exposure Reduction Act would authorize $95 million over four years, beginning in FY91, to carry out the objectives of the program.

The measures would ban lead in all paint, solder, plumbing fixtures, packaging materials, construction materials, pesticides, and fertilizers. They would ban the manufacture, import, and distribution of food in cans with lead solder, and mandate the recycling of lead-acid batteries. In addition, they would require that all products containing lead bear a label indicating the presence and percentage of lead content.

The bills contain other limitations on the continuing uses of lead, including a review by EPA of existing and future lead-containing products, and reporting requirements for smelters and manufacturers of lead-acid batteries.

EPA would be required to appoint a coordinator for all lead poisoning prevention activities and to develop new standards for lead content in ambient air and drinking water. NEA strongly supports the statutory requirement for a maximum contaminant level of 5 ppb in drinking water at the tap. This new level would conform with recommendations in comments we filed with EPA on October 17, 1988, regarding its August 1988 Drinking Water Regulation. LERA would also require the Centers for Disease Control to encourage states to report blood-lead levels and study the feasibility of a national requirement for pre-school blood-lead screening.

Other provisions in the bills include the development of a comprehensive program promoting safe, effective, affordable monitoring, detection, and abatement of lead hazards; a long-term study on the relative contributions of drinking water, food, air, soil, and other materials to lead levels in children; public education and outreach to increase awareness of risks from lead exposure; and continued research on lead poisoning and related issues.

NEA supports provisions of the bill to ban the use of lead and to expand research and public information efforts that will result in reduced exposure to lead. In addition, we support efforts on the part of EPA and CDC to reduce the maximum contaminant blood lead level goal to as low as 15 ug/dl or 10 ug/dl.

In addition, NEA recommends the inclusion of a number of provisions that would significantly improve the bill. The Lead Contamination Control Act (LCCA) is scheduled to expire at the end of Fiscal Year 1991. Reauthorization of the LCCA for at least another three years should be included as a part of the Lead Exposure Reduction Act both to make the provisions of LERA more comprehensive and to keep attention focused on lead levels in school drinking water. As a part of this reauthorization, Congress should require testing of drinking water in all schools, and provide funding assistance to school districts for such testing.

Testing for lead in drinking water is relatively simple, and the preliminary work, including collecting samples, can be performed by school personnel. The chief problem with the LCCA as currently constituted is that there is no requirement for testing by schools. In an article printed December 8, 1989 in the Chicago Tribune, George Brandt, assistant to the director at the Illinois Department of Health, stated "The law itself [Lead Contamination Control Act] has no teeth in it. The trick in this is that if you don't do any testing, there isn't any action you are going to have to take. Only if they [schools] do test do they have to report the results."

The relationship between lead poisoning and health problems, including neurological damage, is so direct and so essential to the success of the education enterprise, that a national requirement for testing and abatement is warranted. The evidence of the dangers of exposure to lead in drinking water is clear, and it would be far better to add such a requirement now than to wait until consideration in the 102nd Congress.

In addition, because schools which do test do not have to report their results either to EPA or a state agency, we recommend that a reauthorization of LCCA include a requirement for reporting of school test results and a yearly report by EPA to Congress on the progress schools are making in addressing this problem.

While national data on the extent of lead contamination of school drinking water are not available, we know that the state of Maryland discovered that 28 percent of the public schools it tested were found to have dangerous lead levels. The Los Angeles Unified School District shut off all water coolers in the school system after finding that 30 percent of its refrigerated coolers produced elevated lead levels after the water was allowed to sit overnight, and 60 percent did so after a seven-day vacation.

For the sake of the 40 million students in the public schools, I urge you to adopt these recommendations to extend and strengthen the school drinking water testing provisions of the Lead Contamination and Control Act.

Another suggested improvement in the bills would be to mandate an EPA study of the extent of lead paint and paint dust in schools. The Environmental Defense Fund and others have correctly pointed out the immense threat from lead-based paint in residential buildings, but NEA is unaware of any studies analyzing to what extent such paint may be present in schools and whether such paint results in lead dust being inhaled by school children. At least 15 percent of all school buildings were constructed before 1939, and another 31 percent were constructed before 1959. It is reasonable to conclude that many still contain lead-based paint.

We propose that EPA be directed to do a survey of school buildings and day care centers to analyze paint in such buildings and to report to Congress on the results.

Finally, we recommend that the public education program regarding lead poisoning that would be established by Section 408(j) of the bill be expanded to include information on lead poisoning from school and day care facilities, as well as from homes.

In closing, it is clear that the time is overdue for our nation to end the scourge of lead poisoning of our children. Enactment of the Lead Exposure Reduction Act and the Lead Ban Act will help establish a comprehensive framework to lessen the harmful effects of lead on the health and educational abilities of American children.

Thank you.

TESTIMONY OF CONSUMERS UNION

Concerning

S. 2637, The Lead Exposure Reduction Act of 1990

and

S. 2593, The Lead Ban Act of 1990

Before the

Subcommittee on Toxic Substances, Environmental Oversight, Research and Development

Committee on Environment and Public Works

United States Senate

Presented by

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June 27, 1990

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TESTIMONY OF CONSUMERS UNION on

S. 2637, the Lead Exposure Reduction Act of 1990
and
S. 2593, the Lead Ban Act of 1990

Good morning. My name is Edward Groth, and I am Associate Technical Director for Policy and Public Service with Consumers Union* in Mount Vernon, N.Y. I am here this morning to support both S. 2637 and S. 2593, to provide a perspective on why such legislation is needed, and to suggest some improvements in the bills before you.

A Perspective on "Safe" Exposure to Lead

To place lead-exposure reduction measures in context, it is worth exploring what is meant by a "safe" level of exposure to lead. The scientific definition of the level of lead in humans that is not associated with adverse biological effects has been constantly shrinking for the past two decades, and it is worth examining the reasons why.

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* Consumers Union is a nonprofit membership organization, chartered in 1936 under the laws of the State of New York to provide information, education and counsel about consumer goods and services and the management of family income. Consumers Union's income is derived solely from the sale of Consumer Reports and its other publications and from member donations. Expenses of occasional public service efforts may be met, in part, by nonrestrictive, noncommercial grants and fees. In addition to reports on Consumers Union's own product testing, Consumer Reports, with approximately 4.5 million circulation, regularly carries articles on health, product safety, marketplace economics and regulatory actions which affect consumer welfare. Beginning with the first issue of Consumer Reports in 1936, Consumers Union has reported on hazards of lead exposure from various sources on numerous occasions. Consumers Union's publications carry no advertising and receive no commercial support.

In 1970, the Surgeon General defined "undue lead absorption" as a blood lead level of 40 micrograms per deciliter (40 ug/dl). That level defined a perceived threshold of toxicity above which lead had clearly adverse effects. At that time, the blood lead level in average Americans was around 15 to 20 ug/dl. In 1978, the Centers for Disease Control lowered the definition of undue lead absorption to 30 ug/dl, based on growing evidence that lead exposure at lower levels posed measurable health hazards. A few years later, the definition was lowered again, to 25 ug/dl. At this point, the topic is again under review by a committee of experts, and CDC is expected to lower the definition to 15, or perhaps 10, ug/dl, this time.

Two factors account for this striking downward trend in the medical definition of "excessive" exposure to lead. First, the past 20 years have seen marked improvements in the ability to detect subtle biochemical and neurobehavioral effects induced by lead in the body. Second, the average exposure to lead has been greatly reduced by control measures such as the removal of lead from gasoline, the voluntary phase-out of alomst all domestic lead-soldered food cans, and the ban on new lead-based paint. As sources of lead exposure have been reduced, the average person's blood lead level has gone down. Today, average blood lead is about 5 to 7 ug/dl, perhaps one-third of what it was 20 years ago.

While the reduction in exposure is good news, exposure has not yet reached a generally "safe" level. As average exposure has declined, research has been able to detect adverse effects at lower and lower levels of lead in blood. Twenty years ago, it would have been essentially impossible to distinguish toxic effects of lead in people with a blood lead level of 10 ug/dl, because there was no comparable group of people with a significantly lower blood lead level to serve as a "control" group. Today, when large populations have blood lead levels around 5 ug/dl, adverse effects can be detected at the 10 ug/dl level. Such exposure has been associated with adverse effects on neurobehavioral development in children, and perhaps with an increased risk of hypertension in adults.

From this analysis, it should be clear that today's average blood lead level of around 5 ug/dl is not necessarily "low," nor can it be presumed to be without toxic effects. It is safe to predict that, if the average blood lead level in Americans were reduced to 2 ug/dl, research could probably demonstrate adverse effects at 5 ug/dl.

Where does this trend lead, and what does it suggest about efforts to control exposure to lead? One answer lies in the elegant research of Dr. Clair C. Patterson, of the California Institute of Technology. Patterson has shown, through elegant geochemical techniques, that the natural background lead level in human beings is 100- to 1000-fold lower than the level found in modern Americans. In other words, comparisons between blood lead levels of 5 to 7 ug/dl and 15 to 20 ug/dl are comparisons of gross overexposure to lead and very gross overexposure; the lower level in this case does not represent "low" or "natural background" exposure. In theory, even the "natural background" level of exposure might not be completely without toxic risks, although it represents the theoretical limit of exposure reduction. However, control measures to date, as effective as they have been, have not altered the basic fact that modern exposure to lead is hundreds of times higher than background levels. If that is true (and the geochemical evidence is persuasive), the historical trend that has seen biomedical research find adverse effects at lower levels of lead in the body might reasonably be expected to continue indefinitely.

In short, control efforts to date have not achieved a level of exposure to lead that is "safe," even for the average person whose blood lead level is around 5 ug/dl. And for hundreds of thousands of children whose blood lead levels are much higher than average, the exposure reduction needed is even larger than it may initially appear.

Implications for Control Strategies

Given a perspective on lead toxicity that shows no clear lower boundary of unhealthful exposure, what control strategy makes the most sense? A 1980 report by the National Research Council, "Lead in the Human Environment," noted the trend just described in the biomedical definition of lead toxicity. That NRC Committee recommended both that "...Efforts to abate lead hazards for children with elevated blood lead levels should be continued or expanded..." and that "A serious effort should be made to reduce the baseline level of exposure to lead for the general population of the United States." The Committee identified six potentially valuable approaches toward those goals:

- Regulation of specific sources of exposure;
- Population screening, to identify individuals with high exposures;
- Planning, to reduce or eliminate sources and separate populations from exposure conditions;
- Technological changes, such as increased reliance on recycled lead and replacement of hazardous uses of the metal with safer alternatives;
- Social welfare programs, including improvements in the quality of housing;
- Education, about lead hazards and preventing exposure.

The same NRC Committee also described the Federal effort to control exposure to lead as "fragmented" and "disjointed," and called for increased inter-agency coordination and cooperation in a systematic effort to reduce exposure to lead.

The advice of that NRC Committee is as appropriate today as it was a decade ago. Although substantial controls have been achieved over lead emissions from motor vehicles and lead from soldered food containers, in many other respects, the sources of lead in the environment pose essentially the same problems now that they did in 1980. In particular, the enormous reservoirs of lead in old paint in housing, and in plumbing systems, have remained major sources of excessive lead intake, and have grown in relative importance as other, more controllable sources have been reduced or eliminated.

Excessive exposure to lead remains today the largest single environmental health hazard to children. As we learn more about the hazards of lower exposure levels, the number of children at risk expands. It is clear today that lead toxicity is not just a problem of the inner city, but can afflict any child, rich or poor, in any community. A systematic, coordinated attack on all sources of lead exposure is needed now just as badly as it was in 1980, when the NRC first called for one.

Specific Comments on S. 2637 and S. 2593

The two bills you are considering today are very much in keeping with the spirit of that 1980 NRC report. They focus on excessive exposure to lead as the central issue, and take a comprehensive approach to sources that contribute. Consumers Union has some brief comments about specific provisions of the two bills:

- Blood-lead screening. S. 2637 calls for reports on the status of blood-lead screening and reporting programs, and for an assessment of a mandatory pre-school lead screening requirement. In CU's judgment, expansion of the screening program is needed. Never adequate to begin with, it was cut back substantially during the past decade. A national lead screening requirement would be a valuable step forward, in our view. Screening should occur at regular intervals from the time an infant learns to crawl (and thus is exposed to lead in soil and dust) until the age of school entry. The value of screening in terms of the health of the screened children is potentially very great. Having more extensive and consistently reported national data on childhood blood lead levels would also be of great value. These values are substantial enough that CU wonders why S. 2637 seeks only to have the Secretary of HHS report on these goals, rather than seeks to establish them as national policy.

- Ban on leaded gasoline. S. 2593 would ban continued sale of leaded gasoline, with certain exceptions. S. 2637 requires that the price of leaded gasoline be no lower than the price of unleaded. CU believes a ban is more likely to have the intended effect, the elimination of the last remaining lead emitted by motor vehicles. Price equivalence is not likely to dissuade some consumers from using leaded fuel if it is available. Many consumers apparently believe that their car "runs better" on leaded gasoline.
- Ban on lead-soldered food cans. The domestic canned-food industry has eliminated about 95 percent of lead-soldered cans over the past decade. A ban could accelerate the completion of that process domestically, and would extend the process to imported canned foods. Consumers Union does not know what fraction of imported food cans are lead-soldered, but this may be a potentially important source of exposure

to dietary lead, especially if there are ethnic populations who depend largely on canned foods to have access to their traditional diets. Both bills address this need.

- Lead in drinking water. S. 2637 would establish by law a National Primary Drinking Water Standard for Lead measured at the tap of 5 ug/liter. CU would prefer to see the EPA adopt this standard (one we recommended in testimony at an EPA hearing in September 1988) through the normal administrative procedures. However, it has been clear for over a dozen years that the drinking water standard for lead was far too high (the NAS/NRC recommended lowering it in a 1977 report); yet EPA has thus far been unable to establish a new and more appropriate standard. Under the circumstances, CU believes it is appropriate for Congress to force the issue.
- Ambient Air Quality Standard for lead. S. 2637 would revise the National Primary Ambient Air Quality Standard for lead, lowering it to 0.5 ug/m^3. Since lead levels in ambient air at most sites in the country are already well below the new proposed standard, CU does not believe this is a matter of the same urgency as the revised drinking water standard. As sources of airborne lead have been eliminated, ambient air concentrations have declined, and continued source controls may be more effective than setting a new standard. A lower air standard might provide new impetus for controls on those remaining (stationary) sources of lead emissions. However, the scientific effort required to determine what

level of lead in air would be consistent with an updated definition of a "safe" level of lead in blood would be substantial. CU believes EPA's scientific resources might better be focused on higher-priority lead control tasks.

- Soil lead guidelines. S. 2637 requires EPA to establish guidelines for permissible levels of lead in soil. Lead in soil finds its way into the human body via several pathways, and can account for a significant fraction of total exposure for some children. Action levels for lead in soil should be useful for public health agencies and would be a welcome addition to existing standards for lead in other media.
- Controls on additional sources of lead exposure. S. 2593 bans the use of lead in cosmetics and packaging materials, and requires FDA to expedite its ongoing decision process on lead in ceramic glazes. S. 2637 bans the manufacture and sale of a wide range of lead-containing products, ranging from fishing sinkers to foil on wine bottles. While CU recognizes that lead has many useful functions and each of those uses has economic value, we also believe that safer alternatives exist for each of the uses specified in this bill. The issue is not whether beneficial uses of lead are going to be lost, but whether even a single lead-poisoned child is a socially acceptable risk, when there are safer alternative technologies available.

One potential flaw is that the proposals before us would stop the introduction of new sources of lead of many types in the future. But they would not reduce the fairly large inventory of lead already dispersed in the environment, in the form of fishing sinkers, curtain weights, and other such items. An answer may lie in expanding the recycling provisions of the bills (see next section of these comments).

- Recycling of lead. Both bills provide incentives and/or requirements for recycling of lead-acid batteries, the major item in the inventory of lead artifacts in commerce. This is a worthy objective; lead batteries are largely recycled now for purely economic reasons, but the proposed bills can push that resource-recovery system to maximum effectiveness.

  CU suggests, however, that the recycling mandate be made broader than just lead-acid batteries. If the bills were to provide disincentives to dispose of any lead objects by land burial or incineration, and if the law were to require those retailers and wholesalers who collect batteries to accept as well other lead objects (such as curtain weights and fishing sinkers) for recycling, it might be possible to reclaim some fraction of the inventory of other lead objects that is now in the hands of manufacturers or sellers of lead products. CU suggests that the recycling provisions of the bills be broadened with this goal in mind.

- Provisions for reducing exposure from lead-based paint. In CU's judgment, neither bill adequately addresses the problem of old lead-based paints in housing, which remains one of the largest and most damaging sources of excessive exposure of children to lead, despite more than 20 years of focused government efforts to reduce this hazard.

S. 2637 recognizes the dismal record of the Department of Housing and Urban Development, which has failed to substantially resolve the lead paint problem over the past twenty years. The proposed law would make EPA the lead agency in a multi-departmental task force charged with tackling the lead paint problem. S. 2593 also gives new authority to the EPA, in the form of a broad mandate to conduct research on lead paint abatement strategies, coupled with authorization for a $30-million, three-year appropriation to fund that research. S. 2637 also provides for a variety of research, development and standard-setting activities to improve the success of lead-paint abatement programs.

In CU's judgment, while research on some points covered by S. 2637 is needed and probably will help improve lead-paint abatement efforts, neither bill provides an effective approach to the lead paint problem. Studying the problem, and spending years of additional research trying to find a better way to get rid of old lead in paint (and plumbing, for that matter), is simply an inadequate response to the challenge. Some suggestions on the kind of response CU would like to see from Congress are presented in the rest of this testimony.

Coming to Terms With The Lead Paint Problem

The Federal Government has been sponsoring research on ways to abate lead paint hazards for nearly 20 years, since the Lead Paint Poisoning Prevention Act of 1971 gave that responsibility to HUD. From the very start, several facts have been obvious:

- The amount of old, high-lead paint in housing is very large, and paint continues to be a major source of severe overexposure of children to lead.
- There is no easy, safe way to remove lead paint from the surfaces on which it occurs. Removal is a slow, labor-intensive process. If not done carefully, it may expose removal workers to excessive lead absorption, and it also may contaminate the home with lead dust that will pose a continuing hazard to the inhabitants.
- Sealing intact lead paint in place is an alternative; it is also slow and labor-intensive, and leaves a potential lead dispersal problem if/when the housing is ultimately demolished.
- Removing lead paint from any significant fraction of the nation's contaminated housing stock would be an enormous and costly undertaking.
- The longer effective action in tackling the problem is delayed, the greater the ultimate cost is likely to be.

Because of the price attached, HUD apparently decided in the 1970s that the nation could not afford to prevent lead paint poisoning by eliminating paint in housing as a source of exposure.

Instead, the strategy has essentially been to employ children as environmental monitors. When a child shows up with a high blood lead level, abatement efforts are focused on that individual child's environment. If resources are available, lead paint sources in that child's home may be detected and abated--after the child has already been lead-poisoned.

Even if all children were now effectively screened for lead exposure (which they are not), and even if detection of a high blood lead level always resulted in identification and abatement of the responsible sources of lead in the child's environment (which it does not, both for technical reasons and because of inadequate resources for deleading programs), the strategy of using lead-poisoned children to trigger priority choices in the lead-paint abatement program is morally abhorrent. Is the economic cost of removing lead paint (and lead in plumbing) so high that we are willing to accept instead the enormous social costs of lead poisoning?

In CU's judgment, our society's failure to solve the problem of lead paint poisoning has not been caused by lack of adequate technical knowledge. The research mandates of S. 2637 will not provide a scientific "magic bullet" that will suddenly make this problem solvable. If research is needed, it should have other, or additional objectives, not spelled out in S. 2637. The broad (but vaguer) call in S. 2593 for study of "strategies" to accelerate lead paint removal might giove rise to some mora helpful results, but both bills could stand to focus more precisely on the kinds of new knowledge that are needed.

In CU's judgment, lead poisoning is not just a biomedical problem; it is a social problem. Abating lead paint hazards is not just a technological challenge; it is a social task of enormous complexity and difficulty. Research is needed, in our judgment, that seeks to learn why the problem of lead paint poisoning remains essentially unsolved after more than two decades of Federal commitment to its solution. We need both diagnostic research, to examine institutional barriers that have frustrated effective solutions (such as powerlessness of the people most affected by lead poisoning to affect national priorities for allocation of environmental hazard-abatement funding), and prescriptive research. These bills should create a mandate that will draw the best economists, political scientists, and social architects into studies of ways to effect the substantive social changes needed to make preventing lead poisoning a major goal of society. Only if it is possible to do that--to place the largest and most serious known environmental threat to children's health high on the national agenda of problems we must solve--can we expect to see funding levels needed to begin to solve the lead paint problem.

In short, we don't need a "magic bullet"; we need to bite the bullet, and spend billions of dollars over a period of years to de-lead our childrens' environment. That this is a real need is no secret. If S. 2637 and S. 2593 can mandate research that will show how that important and valuable goal can be incorporated into our national priorities, it will be more likely to help solve this age-old problem.

Thank you very much. I will be happy to answer questions.

TESTIMONY

OF

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DIRECTOR,

LABORERS' NATIONAL HEALTH AND SAFETY FUND

BEFORE THE

SUBCOMMITTEE ON TOXIC SUBSTANCES,
ENVIRONMENTAL OVERSIGHT,
RESEARCH AND DEVELOPMENT

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

UNITED STATES SENATE

JUNE 27, 1990

LABORERS' NATIONAL HEALTH AND SAFETY FUND
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Mr. Chairman and members of the Subcommittee, I am Knut Ringen, Dr.P.H., Director of the Laborers' National Health and Safety Fund. I was recently appointed to the Centers for Disease Control (CDC) Advisory Committee on Childhood Lead Poisoning Prevention by Health and Human Services Secretary Sullivan. With me today is John B. Moran who is Director, Occupational Safety and Health, for the Fund. We commend you for holding these hearings on S. 2637 which you introduced. This bill and S. 2593 introduced by Senator Bradley address the vital issue of lead exposure in the environment and the workplace.

The Laborers' National Health and Safety Fund is a jointly trusteed organization representing the Laborers' International Union of North America and the contractors who employ its members. The Laborers' International Union represents over 500,000 workers, most of whom are involved in construction, demolition, and toxic-substance control including hazardous waste, asbestos and lead abatement. For adults, occupational exposures are the most important sources of lead exposure. Laborers encounter exposures during the demolition of factories, bridges and other major structures where lead-based paint has been used for decades, as well as in industrial settings.

The Lead Problem

In 1988 the Agency for Toxic Substances and Disease Registry estimated that 42 million housing units in the United

States have lead-based paint. In addition, literally thousands of bridges, factories and other structures have lead-based paint. Laborers perform much of the nation's lead abatement work. Therefore, the issue of proper worker training and standards is of vital interest to our union and its signatory contractors.

Increasingly, construction jobs such as bridge repair and demolition are causing acute lead poisoning of laborers, iron workers, painters and other workers. Lead exposures to welders and cutters have been documented at levels well more than 1,000 times the Occupational Safety and Health Administration (OSHA) permissible level of exposure set for general industry. The California Department of Health Services reported a 44% increase from 1987 to 1988 in the number of blood-lead laboratory findings exceeding the state's reporting threshold. People with the highest blood-lead levels were employed in construction. Recent reports in the CDC Morbidity and Mortality Weekly Report and other scientific reports confirm these trends. Indeed, the CDC report in September 1989 indicated that while construction represented only 5% of the reported excess blood-lead findings, 30.4% of the workers at very high levels were from the construction trades. At the same time, more than 825,000 American workers have potential work-related lead exposures, according to the CDC.

Lead-Related Diseases

Diseases resulting from lead exposures in the workplace are numerous and well known. In fact, lead-related diseases were the first recorded occupational health problems in the medical literature. Levels of lead exposures that were previously considered safe now are considered dangerous, as scientific research gains a better understanding of the neurological, hypertensive and reproductive toxicity of lead. Once absorbed in the body, lead is found in all tissues. Yet 90 percent of the body burden is to be found in the bone. Lead affects several organ systems, with the most sensitive being the nervous system. Lead also effects the gastrointestinal, hemopoietic, reproductive and renal systems. Lead exposures in the workplace can generate numerous symptoms as the blood-lead level increases. Symptoms include fatigue, difficulty in concentrating, irritability, headaches, nausea and sleep disturbance.

Lead Abatement Strategy

It is very clear that our major thrust in dealing with the lead exposure problem must and properly should be focused upon protecting our nation's children, who are the most susceptible to disease caused by lead. There has been a particularly poor understanding of the link between worker protection and protection of children and the general public, however. This is particularly true when it comes to lead abatement in public housing. We have learned bitter lessons in the construction industry over similar issues, asbestos being the most prominent. Poor worker training and poor contractor supervision have led to not only the generation of yet another wave of asbestos victims but have needlessly exposed the public.

The thrust to de-lead our nation's public and private housing presents a far greater potential for poor work practices and procedures that could harm the public health, especially children. This threat exists because the health consequences of excessive lead exposure are acute and chronic and, particularly in children, can have life-long consequences. This is different from asbestos which usually does not manifest ill consequences for 20 or more years after exposure.

The lead problem in construction and concerns about resulting public exposures have prompted Maryland and Massachusetts to enact tough lead standards governing lead exposures in construction, lead-paint abatement, and training and certification for workers, supervisors, contractors and inspectors. These states have moved forward to meet the recognized health threat despite the federal government's lack of leadership. The Massachusetts lead abatement program has accredited the Laborers-AGC Education and Training Fund, a joint labor-management training program, which coordinates all training within the Laborers' International Union of North America. This is the only such fund accredited for lead-abatement worker training at the state or federal level.

Congress mandated two decades ago that the U.S. Department of Housing and Urban Development deal with lead paint in public housing. HUD's record is one of dismal failure and obstruction. The guidelines HUD finally issued under pressure are totally inadequate when it comes to worker performance and protection. OSHA has promulgated a rigorous lead standard for general industry yet has failed to respond in similar fashion to the pressing need for such a standard governing construction.

Recommendations for Legislation

Proper worker training and medical surveillance are absolutely necessary if we are to prevent disease from lead exposures. For example, both S.2637 and S.2594 advocate the recycling of lead acid batteries. However, high blood-lead levels have been documented for workers at smelters and at battery recycling facilities. More research is needed to develop the appropriate technology for controlling lead exposures to workers during these operations. We urge the Committee to provide for such research and controls in the lead battery recycling program.

The legislation also provides that EPA consult with HUD and the National Institute of Standards and Technology to evaluate products and procedures for lead-based paint activities. We recommend the involvement of the National Institute of

Occupational Safety and Health (NIOSH) in such an evaluation. NIOSH is statutorily responsible for developing and evaluating work practices and control technologies, with emphasis on ensuring the safety and health of workers. NIOSH participation in the development of products and procedures for lead-based paint abatement at least will ensure that accountability in terms of worker health and safety is included in the design and development of those technologies. This assistance can come in the form of professional guidance on personal protective equipment, exposure monitoring for abatement technologies, the medical surveillance of workers, and the analysis of exposure to lead and other hazards associated in occupations involving lead abatement.

Furthermore, Senator Reid's bill, S.2637, outlines a program to develop curricula for lead-abatement workers for public and private housing units. Lead exposures occur not only in residential units but also in nonresidential structures such as factories and bridges. Hazardous lead exposures are known to occur and have been documented by workers in these settings. We urge the Committee to include training and curricula for workers in these fields where the type of work and exposures differ from those in housing abatement.

S. 2637 establishes requirements for training and certification of lead abatement workers, supervisors, designers, inspectors and building owners. We would recommend that the Subcommittee consider two additional provisions which we consider essential in meeting the upcoming lead abatement crisis, if we are to avoid an increase in excessive lead exposures to workers, the public and, especially, children.

First, we recommend that a provision be added requiring that OSHA issue an interim health standard for lead in construction based upon the criteria in the general industry standard under 29 C.F.R. 1910.1025. Such interim regulations should be issued within 2 months of enactment with a final and stricter regulation no more than 12 months thereafter.

Second, we recommend that the HUD guidelines for lead-based paint abatement in public housing be revised to comply with the worker protection standards under the current OSHA general industry lead standard until such time as OSHA promulgates the final lead standard for construction.

We also urge the Committee to adopt specific numbers of hours of training for workers, supervisors, contractors and inspectors. It has been our experience that the federal agencies charged with overseeing worker training programs have been far too timid in protecting worker health and safety. We strongly believe that a 40-hour course, which Congress required for hazardous waste workers in the Superfund Amendments and Reauthorization Act, is appropriate for lead-abatement workers.

Organization and Responsibilities

We also suggest that the Committee consider designating specific responsibilities to the following agencies:

- Abatement programs to be administered by EPA along the model provided for in AHERA, with stronger enforcement measures included. We believe an authorization of $200 million for abatement is necessary to produce a national impact.
- Worker training, supervision and monitoring requirements to be developed by NIOSH, with the aim of creating a minimum40-hour course of training.
- A worker training program administered by the National Institute for Environmental Health Sciences along the model provided for NIEHS for hazardous waste worker training, with an authorization of $15 million.
- Human health-effects research of low-level lead exposures to be expanded at NIEHS, with an additional $10 million divided between intramural and extramural activities.
- That community surveillance of blood-lead levels by the Centers for Disease Control in cooperation with the states be expanded and coupled to more extensive enforcement of proper abatement methods, with an

additional authorization of up to $10 million per year for this purpose.

Conclusion

In summary, the Laborers commend Chairman Reid and Senator Bradley for their interest in this legislation and in the issue of lead in the environment and the community. We endorse the legislation and recommend the changes and improvements outlined by our testimony today. Lead poisoning is a major threat to the health of Americans of all ages. The threat from lead to children at home and to workers--at home and in the workplace--is found throughout our society.

De-leading the nation is a massive undertaking which must proceed with adequate safeguards. We stress again that unless workers are properly trained and supervised, contractors licensed and conscientious, and government enforcement vigilant, neither workers nor the general population will be protected adequately. We know how to do the job right, but your legislation must direct us.

This legislation will begin to reduce the threat to Americans from lead and create a safer, healthier environment for all. Thank you.

STATEMENT OF JEFFREY L. ZELMS
CHAIRMAN, LEAD INDUSTRIES ASSOCIATION, INC.

ON S. 2593 AND S. 2637

BEFORE THE
SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT, RESEARCH AND DEVELOPMENT
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

June 27, 1990

Mr. Chairman and Members of the Committee, I am Jeffrey L. Zelms, President of The Doe Run Company, a producer of lead and other metals. I am also Chairman of Lead Industries Association, Inc., a trade association whose members are producers and commercial consumers of lead. My appearance here today is on behalf of the Association.

I testified before this Committee at the March 8 hearing on child lead exposure. That hearing focussed on deteriorated housing that was at one time painted with products containing lead compounds. At the close of the hearing, the Chairman indicated that legislation would be drafted dealing with the paint issue.

S. 2637 addresses that issue and also has very useful provisions that should result in an even further increase in the already high battery recycling rate. We support those provisions which we understand will be discussed in detail by the witness for Battery Council International, who will also discuss the battery recycle provisions of S. 2593.

However, other provisions of S. 2637, which will reduce the use of lead in the United States and represent a step in the direction of eliminating it, concern us greatly, as do some provisions of S. 2593.

Our reasons for opposing enactment of S. 2637 in its present form are as follows:

- It would unduly restrict current uses of lead that are socially and economically beneficial without requiring a showing of the need for such measures.
- It would effectively ban new uses of lead and therefore stifle research and development.
- In assessing the potential risks posed by current and future uses of lead it ignores measures that have already been taken or are now underway to reduce lead exposures.

However, LIA does support initiatives to reduce remaining lead exposures. For example, in addition to S. 2637's initiative for greater lead battery recycling, we support:

- An EPA regulation reducing corrosivity of drinking water supplies to minimize lead in that water;
- The review of existing lead uses that is already underway at EPA under the Toxic Substances Control Act;
- A process for notifying EPA of new uses of lead which pose the potential for significant public exposure to lead so that EPA can determine whether

regulatory action under the Toxic Substances Control Act is required;

- Enhanced blood lead screening programs and emergency response programs for children with unacceptably high blood lead levels; and
- an industry new product review program designed to help minimize potential exposure to lead.

S. 2637 fails to distinguish between old uses of lead -- such as consumer paint containing lead additives -- which resulted in public exposure to lead and have now been discontinued or reduced to a minimum, and today's products which do not expose the public to lead. Today's products, moreover, include a long list of high technology, radiation screening, lighting and energy conservation devices that are essential to U.S. consumers and to the country's defense and its competitive position.

S. 2637 also fails to recognize that a comprehensive scheme of lead regulation by the Environmental Protection Agency, the Occupational Safety and Health Administration, the Food and Drug Administration and the Consumer Product Safety Commission ensures that lead is produced safely and that its use in products does not pose a threat to human health or the environment. The proof of that, as I will point out later in my statement, is that blood lead levels throughout the United States have declined substantially over the past decade, are now very low and are continuing to decline. Furthermore, with the cooperation of our industry, EPA is actively engaged in a complete review of lead production, use and disposal under Section 6 of the Toxic Substances Control Act to make sure that no present day lead products pose an unreasonable risk to health. Our problem is that S. 2637 would prejudge the outcome of EPA's Section 6 review.

S. 2637 Would Effectively Ban New Uses of Lead Without Considering Key Factors

S. 2637 would prevent the production of any new product containing lead until EPA has determined that there is no "comparable substitute" for lead in the product and that the use of lead in the product would not contribute to "dispersion" of lead into the environment. The bill would thus in effect ban new uses of lead and thereby stifle research, development and technological innovation. It would do so without consideration of the harm (or foregone benefits) to human health or the environment that might result from unavailability of these new products or from use of lead substitutes. Nor has there been consideration of lost social, economic, and military/scientific benefits that may result from chilling new research. Indeed, as drafted, the new use provision precludes consideration of whether the risk posed by any new use would be at all significant.

This provision would discourage the research that has led to a long list of valuable uses of lead in such fields as electronics, defense, electroceramics, computers and lighting.

Had the provision been in effect in prior years, it would have stifled the development of those products and others, and enabled foreign competitors to gain the edge in fields such as computer production where the United States is preeminent.

We would support the development of an inventory of lead uses, as S. 2637 would require. Also, we would not object to a new requirement that EPA be notified of new uses of lead posing the threat of significant human exposure so that it can take action if necessary under existing authorities of the Toxic Substances Control Act. We would, however, see no benefit in applying such a notice provision to batteries, high technology and other uses where the risk of public exposure is virtually non-existent.

The industry would also be willing to consider a program whereby we would monitor new uses of lead to ensure that they do not involve significant public exposure to lead. What we are opposed to, and what would seriously weaken and ultimately destroy the industry, is a system that makes it so difficult to produce new products containing lead that no one tries to. In addition to the economic harm and market disruption that this would cause, there would be little or no environmental benefit and no assurance that the substitutes for lead would be better for the environment.

S. 2637 Would Unduly Restrict Current Uses of Lead

S. 2637 would create a separate regime for reviewing lead uses under the Toxic Substances Control Act. EPA would be required to ban the use of lead in any product on the mere finding that a "comparable substitute" exists -- even if the use of lead poses no environmental threat and without regard to whether the so-called comparable substitute is itself a potentially toxic material. Furthermore, EPA would have power to ban lead uses without considering the total costs of such bans to consumers and American industry or the impact of such restrictions on the ability of the United States to compete internationally with manufacturers who are not subject to the bill.

In addition, S. 2637 would ban the use of lead in several listed products within one year of enactment. Several of them, such as solder, plastic additives, construction materials and glazes, are important to our economy, involve little or no environmental exposure and, in the case of glazes, are already regulated by the Food and Drug Administration.

As I pointed out earlier, EPA is already actively engaged in a review of all facets of lead production use and disposal in the United States -- including consideration of the products listed by S. 2637. Changing the rules in midstream is not going to speed that review, and the change that S. 2637 proposes would make the ultimate decision a far less reasonable one.

S. 2637 Would Inappropriately Revise Standards

We are particularly concerned with two other provisions of S. 2637. One is the bill's preemption of EPA's review of the National Ambient Air Quality Standard for lead. EPA's Clean Air Scientific Advisory Committee recently concluded that it is not at all clear that reducing the standard would have any significant health benefit. That is so because the current standard of 1.5 micrograms per cubic meter ($\mu g/m^3$) is already extremely stringent, and EPA's own estimates show that reducing it to 0.5 $\mu g/m^3$ would have an insignificant effect on the very few children who live near shelters.

The other provision we are concerned with would reduce the Primary Drinking Water Standard for lead to 5 micrograms per liter ($\mu g/l$) measured at the tap. As I will explain in greater detail later in my testimony, and as I am sure representatives of U.S. public drinking water systems will attest, a 5 $\mu g/l$ standard is not uniformly achievable at the tap. What is needed instead are regulations requiring public drinking water systems whose water is corrosive to treat the water for corrosivity so that it will not cause leaching from lead service lines. We have urged EPA to promulgate such regulations.

Certain Provisions of S. 2593 are Unnecessary

We support Section 101 of S. 2593 which would require the creation of an identification system to prevent inadvertent or unlawful use of lead solder in the installation of water systems. We also support Section 102 which would require EPA to consider the extent to which the use of lead in brass alloys in faucets and fittings can be reduced or eliminated. Note, however, that the study of brass alloys in faucets and fittings will presumably be a part of EPA's Section 6 investigation.

That investigation will also cover the products that would be banned by Sections 103 (lead in gasoline), 105 (lead in food processing and cans), 106 (lead in cosmetics), and 201(a)(3) (lead in packaging). We take further issue with Section 201 (a)(3) insofar as it premises a ban on the use of lead in packaging and packaging components on alleged environmental hazards posed by disposal of lead packaging materials in municipal solid waste. As I will explain later in my testimony, recent studies undertaken by independent researchers on behalf of the U.S. Conference of Mayors show that the presence in municipal waste of products containing lead does not pose a threat to human health or the environment.

Present and Future Uses of Lead

I said earlier that S. 2637 appears to confuse the risks to health posed by discontinued, or greatly reduced, uses of lead with today's lead products which involve little public exposure. To understand that point, you have to understand that the industry and the uses that are made of lead are significantly different today from the way they were 50 or even 10 years ago, reflecting changing environmental attitudes and changes in our society. Old uses that involved significant public exposure to lead have been replaced with high technology applications where lead can be used safely.

To begin with, the four important uses of lead and lead compounds that once caused significant public exposure to lead have been discontinued or so reduced that they do not represent a significant threat to health.

First, lead compounds are no longer added to paint used in housing. Such use was largely discontinued voluntarily over 30 years ago and completely banned by Congress in 1972.

Second, most U.S. cards do not use gasoline containing tetraethyl lead today, and such use is declining. Furthermore, the lead content of gasoline that still contains tetraethyl lead is a fraction of what it used to be. Measurements of lead concentrations in the air in large urban areas where they are likely to be highest show that lead levels associated with gasoline are far below EPA's air lead standard.

Third, the use of lead solder in food cans, which is monitored by the Food and Drug Administration, has been reduced to a small fraction of former levels and is declining. Information supplied to us by the National Food Processors Association and the Can Manufacturers Institute indicates that lead solder is used in only three percent of food cans produced in the United States today, and where lead solder is used, a lacquer seal is applied to the solder seam to protect against leaching of lead into food. Further, the Food and Drug Administration is monitoring the use of lead solder in cans.

Fourth, Federal law prohibits the use of lead in plumbing service lines that carry potable water and lead solder may not be used for such plumbing.

As I have pointed out, at the same time these old uses of lead have been abandoned or largely discontinued, new uses for lead have been developed that provide important public health, safety, energy conservation and other economic benefits, and old beneficial uses have been expanded. These uses do not involve significant public exposure to lead. The public does not, for example, come in contact with lead in computer screens or circuit boards in a way that results in the ingestion of lead, and as I will show later, the disposal of these materials poses no environmental threat.

As you are well aware, a principal use of lead is in automotive and industrial batteries which consume approximately 80 percent of U.S. lead production. Most of that lead is recycled. But there are many other uses of lead that, though they account for a small percentage of lead production, are of great importance to the nation's defense and to U.S. industry and U.S. consumers. These are described at length, along with the reasons why there are no satisfactory substitutes for lead in most applications, in a letter I wrote to the Chairman on June 7, 1990 in response to questions posed by him following the March 8 hearing. A copy of that letter is attached to my testimony and I will only summarize its contents here.

Lead has a combination of properties -- the principal ones are high density, high opacity to gamma and X-ray energy, low sound conductance, a low melting point, exceptional malleability, high corrosion resistance, stability, and special electrical properties -- that account for its use in many products. To provide screening against gamma and X-rays, lead is used in TV and computer screens and for medical and nuclear radiation screening. Lead alloy solders that would be banned by S. 2637 are used extensively for electronic circuitry. Other uses include light bulbs, optical and ophthalmic glass, cable sheathing, ceramic glazes, fiber-optics, consumer appliances, plastic stabilizers for electrical wiring, aircraft soundproofing, engine bearings and mechanical weights.

Many of these products have been developed in recent years because of lead's unique properties so that banning lead use would require the total redesign of these products. It should thus be apparent that any effort to limit or ban the use of lead in these products will cause a great deal of economic harm. And it will do so without any material environmental benefit since, as I have pointed out, with rare exception products containing lead do not threaten harm to human health or the environment. In many cases, such as radiation screening and energy-saving lighting, products containing lead provide important health and other environmental benefits.

Lead also has a large number of essential military uses. Lead-zirconate-titanate is used in piezo electronic ceramic devices that are used in submarine detection buoys and sonar. This same alloy is used in guidance sensors for torpedoes, bomb detonators, and the Trident submarine's hull propulsion system. Lead alloy solder is required to connect the innumerable transistors, relays, and other components in the printed circuit boards which run the electrical systems in missiles and satellites. In addition to the solder used inside the computers, lead-based "solder glass" holds together the cathode ray tubes which are familiar to us as computer screens and the screens on TV monitors and scopes. Without a high percentage of lead, the solder will not bond effectively. Leaded glass also has unique refractive properties that amplify low light emissions making possible a variety of indispensable equipment such as night-vision scopes and X-ray telescopes.

Other military uses include nuclear radiation barriers in submarines and nuclear-powered installations, soundproofing and radiation shielding in high-altitude aircraft, and ballast weights in submarines, where lead's density keeps the volume of material low; to substitute another substance would mean redesign and re-engineering of the entire submarine fleet.

And beneficial new uses of lead are on the horizon. They include, for example, a sheet radon barrier for homes which has been developed to reduce the hazards posed by radon. Other new uses for lead are being developed in high technology fields such as electroceramics.

Lead is thus an important component of the U.S. economy. The economic contribution from the basic mining, refining and milling of lead alone approaches $1.1 billion annually, employing 6,190 workers with an annual payroll nearing a quarter-billion dollars. Time has not permitted an analysis of the economic benefits of using lead in products or the harm to American industry that could result from banning that use, but it seems self-evident that ending or sharply curtailing uses will have a substantial negative impact on the U.S. economy.

Federal Regulation of Lead Production and Lead Products

As I stated at the outset of my testimony, lead production, use and disposal are highly regulated today, and EPA is proceeding under Section 6 of the Toxic Substances Control Act to make sure that there are no gaps in the regulation of lead.

Air Regulation. In 1978, when EPA adopted the present National Ambient Air Quality Standard for lead, the agency stated that the goal of the standard was a significant reduction in the concentrations of lead in the average child's blood.

Specifically, the goal was to reduce the blood levels of 99.5 percent of the nation's children below 30 micrograms per deciliter (μg/dl). EPA estimated that in order to achieve this goal the mean blood lead level of the nation's children would have to be reduced to 15 μg/dl. EPA estimates that the mean blood lead level in the general population of U.S. children is now 4.2 to 5.2 μg/dl and declining.

The evidence we have indicates that blood lead levels are also below EPA's target at lead smelters. LIA has been able to obtain blood lead data for children living near four U.S. smelters and one in Canada. All of them are well below the 15 μg/dl goal set by EPA in 1978, and the contractor that has reviewed the data for LIA, TRC Environmental Consultants, Inc., has advised that all indications are that these levels are continuing to decline.

One of these smelters is the Revere Smelting and Refining Corporation plant in Wallkill, New York, where child and adult blood lead levels were measured by Government and company officials this spring. State authorities reported an arithmetic average of 6.8 μg/dl for children and adults with no child over 9 μg/dl. Data supplied LIA for another secondary smelter, the Leeds plant in Alabama, show a mean blood lead level for children under six of 6.9 μg/dl. The mean for children under five reported for the Canada Metals smelter in Toronto, also a secondary facility, was 6.5 μg/dl.

In the case of the two U.S. primary smelters, the data LIA and its contractor have been supplied show that the mean blood lead level for children under seven was 8.6 µg/dl at the ASARCO, Inc., East Helena, Montana, smelter in 1988, and 9.9 µg/dl this year at my company's Herculaneum smelter in Missouri.

The 15 µg/dl target mean established by EPA in 1978 was based on the finding that adverse effects of lead begin to occur above 30 µg/dl and that a national mean of 15 µg/dl would bring all but a small percentage of U.S. children's blood leads below 30 µg/dl. We are of course aware that EPA is considering reducing the blood lead threshold for adverse effects of lead to a range of 10-15 µg/dl. Our health advisers question the need for establishing such a low threshold on the grounds that the health studies that are said to support such a reduction are in conflict, and the alleged health effects are slight. But the industry is determined to meet whatever goal is established.

In that connection, it should be of interest to the Committee that this spring's testing at the Revere secondary smelter showed that no child's blood lead level was higher than 9 µg/dl. It is also of interest that EPA's Staff Report prepared as part of the review of the national Ambient Air Quality Standard for lead estimates that the mean blood levels of children living near three major point sources of lead (in Montana, Texas and Florida) will range between 3.6 and 5.6 µg/dl in the early 1990s. These levels are in line with the estimated national mean range and are projected to be achieved without any tightening of air or water standards.

The reduction in the National Ambient Air Quality Standard for lead from 1.5 $\mu g/m^3$ to 0.5 that would be mandated by S. 2637 is unnecessary and would not have any significant effect on children's blood lead levels. EPA's studies show that a reduction in the standard from 1.5 to 0.5 μg/dl would reduce the mean blood lead of children living near lead emitting sources by a fraction of 1 μg/dl. Our own studies show that only some 1,244 children are exposed to air lead concentrations above 0.5 μg/dl. What that adds up to is an insignificant benefit from a standard reduction. EPA's Clean Air Scientific Advisory Committee agrees that it is unclear whether reducing the standard would be a significant benefit. We therefore see no justification for preempting EPA's review of the standard as Section 4 of S. 2637 would do. Furthermore, the issues are clearly scientific ones that should be left to EPA.

A final point on this subject. When EPA's National Ambient Air Quality Standard for lead was promulgated, the then Administrator of the Agency, Douglas Costle, acknowledged that the standard was being set so low that it would be difficult for many sources to meet. That has certainly proved to be true, and there are instances where lead smelter emissions exceed the current lead standard. While we are eager to see all smelters achieve compliance, each of the U.S. smelters for which I have cited blood lead data has one or more monitors that have at times exceeded the standards, yet the blood lead levels of children living nearby are below EPA's target levels and are declining.

Food and Drinking Water Regulations. While reducing air lead level has had an impact on reducing children's blood lead levels, reductions in the amount of lead in food and water may have had an even more important impact. EPA estimates that public exposure to lead in food and water has decreased by 84% from the 1978 level, and is continuing to decline. This is attributable in major part to the declining use of lead solder in food cans, limitations on the leachability of ceramics imposed by the Food and Drug Administration and EPA's regulations limiting the lead content of drinking water.

In the case of drinking water, EPA estimates that over 99 percent of the nation's public drinking water systems meet the current standards -- which EPA proposes to tighten. However, as I pointed out earlier, some public drinking water systems deliver water that has not been treated to reduce corrosivity. When that water comes into contact with lead in delivery lines or household plumbing, leaching action can result in unacceptably high lead levels in first flush samples at the tap.

We agree this is an area in which further regulatory action is called for. Lead Industries Association submitted comments to EPA urging the agency to adopt drinking water regulations requiring public systems to utilize a treatment technique for corrosivity where water passes through lead pipes. Such techniques are already used in some cities. Attached to LIA's comments was a study by Resource Consultants, Inc., which specializes in water treatment issues, demonstrating that adoption of such a requirement is eminently feasible and quite effective. EPA has indicated that it is considering imposing such a requirement, and if EPA does so the problem of lead in drinking water should be behind us.

Section 5 of S. 2637, which would mandate a 5 micrograms per liter lead drinking water standard if EPA has not acted to revise the standard within a year, would impose an infeasible and unnecessary requirement on the nation's public drinking water systems. Evidence submitted by LIA to EPA shows that in some public drinking water systems lead levels at the tap cannot be reduced below 25 micrograms per liter (μg/l). We believe this will be confirmed by public drinking water system authorities. The studies also show that there is a threshold below which lead concentrations in water do not appear to affect lead concentrations in blood. That threshold is somewhere in the 25 μg/l area. Hence, reducing the lead drinking water standard to 5 μg/l, as proposed by S. 2637, is neither necessary nor feasible.

In the case of lead solder in food cans, I have pointed out that lead solder is used in only a small percentage of food cans today, the use is declining and a lacquer seal is used to prevent the lead from leaching into food. However, I want to emphasize that we are not here to contend that no human ingestion of lead results from the use of lead solder in food cans. Whether such ingestion occurs and whether it is meaningful are questions that EPA will be considering in its Section 6 case; the only point I want to make is that there is no basis for Congress to take action before EPA has reviewed the matter.

Lead in Municipal Solid Waste. With the enactment of RCRA, industrial hazardous waste can no longer be disposed in municipal incinerators or municipal solid waste landfills. And since approximately 80 percent of the lead produced in this country is used for automobile and industrial batteries and we believe the recycle rate for lead-acid batteries is approaching 90 percent, most lead used in consumer products does not enter the municipal waste stream. Furthermore, S. 2637 and other bills before the Congress are designed to increase the battery recycle rate by banning the disposal of lead-acid batteries in landfills or municipal incinerators. As I stated earlier, we support enactment of such legislation which should all but eliminate disposal of lead acid batteries in municipal waste.

Most of the lead used in other consumer products disposed in landfills is not susceptible to leaching and thus cannot migrate to underground waters. Examples include the lead employed in plastics, crystal and glass, and in computer and television screens. In all of those applications, lead is bound into the chemical matrix and will not escape through leaching action.

These facts are reflected in the low concentrations of lead in the leachate found in post-RCRA municipal solid waste landfills and in municipal incinerator emissions to the air. It is true that when tested in the laboratory lead concentrations in some incinerator ash exceed the level defined by EPA as hazardous. However, a recent report that was done for the Coalition on Resource, Recovery and Environment (CORRE) by NUS Corporation, an EPA contractor, shows that ash lead levels are not leading to elevated leachate levels in monofills or co-disposal sites. The CORRE study analyzed the leachate at the bottom of a number of sites at which municipal incinerator ash was disposed alone or with other municipal waste and found that the concentrations of lead never exceeded 1 percent of the level deemed hazardous by EPA. In fact, only one sample exceeded the drinking water standard, and only fractionally even then.

As for incinerator air emissions, EPA's studies indicate that none of the existing 186 U.S. municipal incinerators exceeds the National Ambient Air Quality Standard for lead. A 1987 EPA study notes that modeled lead concentrations never exceeded 60 percent of the lead NAAQS, even at the worst facility. Similarly, the Brooklyn incinerator study reports that lead air standards were never exceeded in their modeling exercises. Planned facilities such as in Hempstead, New York, will incorporate newer technologies that will reduce lead emissions further.

Regulation of Workplace Exposure to Lead. OSHA regulations limit worker exposure to lead in air through a combination of engineering controls, work practices, respirator use and a host of administrative requirements. The regulations also require periodic testing of worker blood levels and the removal of workers, at full pay, from exposure to lead when their blood lead measurements exceed specified levels. The removal program thus imposes a biological standard in addition to the conventional standard limiting airborne concentrations of lead. This provides additional insurance against adverse health effects resulting from lead exposure.

Conclusion

As I stated at the outset, there are a number of initiatives that we can support that would achieve the health and environmental objectives of S. 2593 and S. 2637. We want to work with the Committee on these initiatives. But we cannot support the lead ban provisions of S. 2593 or S. 2637. Lead is highly regulated today and public exposure to it is limited. The issue of limiting the use of lead in products is being fully considered by EPA so that legislation banning current uses or discouraging new ones is unnecessary; and such legislation will cause considerable economic harm with no demonstrable environmental benefit. We also believe that there is no valid reason for interfering with EPA's development of new air and water standards, as S. 2637 would do.

Lead Industries Association, Inc.
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June 7, 1990

Senator Harry Reid, Chairman
Subcommittee on Toxic Substances,
Environmental Oversight, Research and Development
United States Senate
Committee on Environment and Public Works
Washington, DC 20510-6175

Dear Senator Reid:

This letter responds to the questions relating to your Committee's March 8 hearing on the long term health effects of lead exposure that were directed to the Lead Industries Association (LIA) in your letter to me dated March 22, 1990.

You have asked LIA to answer three questions. The first and third involve essentially the same issue -- whether and to what extent the lead industry might contribute to the costs of paint abatement in homes containing lead-based paint. You point out that the pendency of lawsuits against individual companies might affect LIA's willingness to comment on this matter. In fact, several lawsuits have been brought against LIA concerning lead paint in housing in which either damages or abatement costs are being sought. Because of those lawsuits, we believe LIA should not respond to questions one and three.

The second question notes that the public is aware of the use of lead in lead-acid batteries, and asks about other uses for lead of which the general population may not be aware. That question also asks whether substitutes are available for lead in these other products.

Lead has a combination of properties -- the principal ones are high density, high opacity to gamma and X-ray energy, low sound conductance, a low melting point, exceptional malleability, high corrosion resistance, stability, and special electrical properties -- that have resulted in its being used in a long list of products that play an important role in our economy. Before outlining the major products that use lead, I should point out that, as we have advised your staff, LIA and two other associations, Battery Council International and the Secondary Lead Smelter Association, are cooperating with the Environmental Protection Agency in a study of lead production, disposal and uses which will examine the reasons for the use of lead in products. LIA's members include only a small fraction of the industrial consumers of lead who can best explain why lead is a necessary constituent of their products, and we are arranging meetings over the next six weeks between EPA representatives and representatives of these industrial consumers at which time the reasons for using lead and the question of whether or not satisfactory substitutes exist in particular applications will be discussed in detail. This information will add substantially to what we are able to provide you today, and will be transmitted to you and your staff as it is developed.

Some of the major uses of lead are set forth below. Note that the discussion is confined to lead's special properties and does not take into account any cost advantages lead may enjoy over potential substitutes or the fact that many potential substitutes are themselves toxic materials. For example, barium, strontium and zirconium, which can provide a radiation shield, though not as well as lead, all present potential health or environmental concerns.

Television Tubes and Computer Screens. Cathode ray tubes for both television and computers emit radioactive gamma rays and X-rays when in use. Computer screens and television face plates and viewing screens therefore require a radiation barrier for consumer safety. The Nuclear Regulatory Commission has stated that lead represents "the best practical gamma shield material" and its use in protecting against X-rays is well-known. Because of lead's high opacity to radioactive energy, and the fact that large quantities may be incorporated in glass without impairing clarity or workability, it is the material of choice as a radiation barrier in the picture tubes and face plates of television sets, as well as computer screens and other video display terminals. Strontium, barium and zirconium also have some opacity to radioactivity but far more of these substances would be needed to equal the radiation opacity of lead, enough so that glass containing these other substances would lack stability and could not be formed satisfactorily. The introduction of high resolution or high definition television tubes (HDTV) will involve greater voltage and even more intense gamma and X-ray radiation, and therefore will require tubes with an even greater degree of shielding (radio-opacity) than current television does. Hence the use of lead will be even more essential.

Medical Uses. Because of lead's ability to provide a radiation barrier, lead shielding is required for the safe use of X-ray and other medical imaging devices, and in the use of radiation therapy for the treatment of intractable disease. Where radiation protection is needed in structures, such as X-ray rooms in medical offices, thick concrete or steel walls can provide equal radiation protection, but the result is an extremely heavy wall that is rarely feasible in retrofiting old buildings and poses structural problems in new ones. There is no satisfactory substitute for lead in providing personal protection in medical offices or for other medical uses such as analytical devices.

Nuclear Power Plants. Lead is widely used in nuclear power plants to shield workers from harmful radiation. Its superior radiation absorption abilities far outstrip theoretical substitutes. In particular, its use in lead-containing glass for observation windows used to monitor nuclear reactions is irreplaceable. In order to provide enough protection, these windows often contain as much as 80 percent lead; to obtain similar shielding values, a product made with strontium or barium would require concentrations at levels above 100 percent, a theoretical impossibility, or much thicker glass, which would decrease visibility to unacceptable levels.

Nuclear Disposal. The ability to block radiation also makes lead useful in containers for the shipment and disposal of high-level radioactive wastes. Most such containers use lead linings inside shells of stainless steel or nickel-based alloys. Substitutes are less effective and in addition do not offer as reliable protection against leaching, necessary to reduce the likelihood of radioactive leakage.

Aviation Soundproofing. Lead's density also enables it to screen sound waves. Leaded vinyl placed against the outer skin of an aircraft fuselage acts as a sound barrier, and may also act as a radiation shield at high altitudes. Other materials potentially useful as sound barriers have less screening ability than lead and would have to be used in such quantities to compensate for this that their use in aircraft is not practical.

Electronic Circuitry. Traditional lead alloy solder has wide and increasing application in the electronics industry. Lead alloy solder is used to connect the transistors, relays and other components attached to printed circuit boards to provide continuity for electrical systems, including those in missiles and satellites. Lead alloy solder also provides joints that are impermeable to gases and liquids. Lead solder is essential because its melting temperature is neither too high, which destroys sensitive components, nor too low, which leads to melting during normal board operations. Indium and bismuth alloy solders that do not contain lead are occasionally used as substitutes for lead alloy solder, but in printed circuit board manufacture lead is almost always added to indium and bismuth alloys because the resulting solder is less subject to failure. Indium alloys suffer the defect of having a 244-290°F melting range and are only used -- on a limited basis -- in specific low temperature applications. Bismuth alloys pose similar problems and tend to be brittle. In addition, both of these solders require special fluxes that create removal and reliability problems. Tin-silver and tin/antimony alloys require soldering temperatures about 70° higher than those required for tin/lead solders which rules out their use for soldering temperature-sensitive devices to printed circuit boards.

Light Bulbs. Because of its low softening and melting temperature range, surface tension and its resistance to devitrification, lead glass tubing is used in incandescent and fluorescent bulbs for exhaust tubing and flaring. The excellent electrical resistance, ease of formation and low melting point of lead glasses, along with ability to match the expansion coefficient of the metal leads which pass through the glass, make leaded glass an ideal product for use in light bulbs. There is no acceptable substitute for lead in the most rigorous applications, such as airport, stadium, and other outdoor lighting, and high intensity discharge lighting. Other types of glass melt at high temperatures, and do not withstand temperature shifts or the elements as well, significantly increasing their failure rate. Lead solder is also used in light bulbs. The principal potential substitute, indium-based solder, has disabling performance deficiencies.

Optical and Ophthalmic Glass. Because of its high refractive index and its freedom from color, lead oxide of a very high purity is used in the manufacture of eyeglasses and lenses for all kings of optical and ophthalmic products where precision and lack of distortion are required. These uses include:

1. Defense - surveillance camera systems, binoculars, periscopes, robotic sensing devices, lasers, night vision, scopes and goggles, X-ray astronomy (used in the "star wars" program), and target-fire control systems. High lead content glass is the critical element in microchannel plates that amplify low light emissions and make a range of image-intensifying technology possible. No known substitute can duplicate the capabilities of lead for these applications.

2. Medical - fiber-optic probes, camera systems, radiation protection. The image-intensifying abilities of leaded glass have also permitted development of X-ray machines that deliver lower doses of radiation to patients, since these special leaded glasses can enhance fainter X-ray images to equal the clarity of older, high-exposure X-rays.

3. Nuclear - hot cell shielding, material processing. There is simply no satisfactory substitute for lead in these applications.

Solder Glass. These special glasses are ground into powder and mixed with a liquid to form a paste, which is applied to the edges of cathode ray tube panels and funnels. The edges are then pressed together and fired, removing the liquid and fusing the solder glass, which securely bonds the two parts. Without a high percentage of lead, the solder will not work effectively.

Cable Sheathing. Main power lines operating at 15,000 volts require insulation that is impervious to moisture. Lead's malleability -- i.e., its ease of forming and extrusion -- and its stability and resistance to corrosion make it especially suitable for this use; efforts have been made to develop substitutes, such as plastics, but these have failed at an unacceptable rate. Also, in part because it is impervious to moisture and resists corrosion, lead is still used in sheathing for underwater telephone and power cables and cables that pass through poorly drained areas. The introduction of optical fiber cable has largely eliminated the use of lead in connection with new telecommunications cable, but lead is still needed in the retrofit of existing cable lines.

Ceramic Glazes. Because of several properties mentioned earlier -- low melting point, low surface tension, high index of refraction and resistance to corrosion -- lead in the form of lead-oxide is used widely in glazes. Food and Drug Administration guidelines ensure that lead and other toxic elements will not leach from these glazes in concentrations that pose a threat to human health. In fact, lead's exceptional chemical durability makes its leach resistance superior in performance capabilities to available alkali-based alternatives.

Piezo Electric Ceramics. Electronic ceramic compounds made of lead zirconate titanate have extremely high electrical conversion efficiencies and other properties that make possible a vast array of high-technology sensor devices used in many military and industrial applications.

1. Defense - acoustical sensors which will be placed in hydrophones throughout the earth's oceans to detect the silent submarine motors the Soviet navy has developed from technology improperly sold to it by Toshiba; guidance sensors for submarine torpedoes; pressure sensors for bomb detonations; piezo electrical components that are essential to sonar and are used in the hull of the Trident submarine to propel water from the front of the ship so that it can glide through quietly and quickly; "deformable mirrors" used in guiding laser beams around clouds, in research for the Strategic Defense Initiative.

2. Medical - ultrasound diagnostic equipment and cleaners for operating room instruments, laser scalpels, fetal monitors, intravenous blood pumps, and heart pump devices.

3. Automotive - 15 to 30 parts in modern cars depend on electronic ceramic components, including sensors that activate air bags, seat controls, safety belts, anti-lock braking systems, and air intake valves.

4. Nondestructive testing apparatus - state-of-the-art testing methods to detect structural flaws in steel building beams, aircraft fuselages, and railroad tracks.

5. Nuclear reactors - sensors used to monitor for reactor cracks and dangerous variations in reactor cooling water temperatures.

6. Flow and level meters - sensors to ensure that desired flow rates are maintained in oil pipelines, and that programed levels are adhered to in all kinds of food, chemical, pharmaceutical, and wastewater tanks.

7. Consumer appliances - sensors used in washing machines, microwave ovens, humidifiers, telephones, and almost all household appliances.

8. Vibration - motorized products - once charged with electrons, piezo electric ceramics operate as small motors, powered by extremely high speed vibrations. This property finds uses in drills for dentistry and construction, welding machines, robotics, and ink jet printers for computers.

New uses for piezo electric ceramics are being developed almost daily, and lead's special qualities -- its dielectric constant and coupling factors -- are without peer in forming the critical electrical properties in these compounds. No known substitute could replace lead in these applications.

Stabilizers for Plastic Wire Insulation. Lead stabilizers impart important properties to polyvinylchloride insulating sheathing for electrical wiring. Besides the usual protection offered against heat breakdown during processing (the function of a stabilizer), the lead stabilizer also contributes superior dielectric properties to the insulation. This means less likelihood that electrical wire will "short out" under heavy load, averting potentially disastrous home, apartment and appliance fires. No other substance potentially useful as a stabilizer is as effective.

Lead Bearings for Engines. To our knowledge, there is no suitable substitute for the use of lead in bronze and lead/tin/copper bearings used for all kinds of moving and sliding surfaces for mechanical equipment, ranging from electric motors to automobile and other internal combustion engines, wheel bearings, millions of pieces of production equipment such as looms, printing presses and all assembly line machinery.

Mechanical Weights. Lead is used in a variety of applications for mechanical weights. For example, lead weights permit optimum wheel balance in cars, a development which has been of critical importance to greatly increased automobile fuel efficiency over the past two decades. Lead weights were also the natural choice for counterweights in the limited space available for this purpose in Cruise missiles. In these and other applications, no substitute offers the same density as lead, and the use of alternatives would require redesign of components to accommodate larger volumes of the materials used in weighing. The use of larger components is problematic where space constraints exist, and in the case of wheel weights used in cars would have adverse effects on automotive fuel efficiency.

Architectural Uses. Lead-based roofing materials offer a number of advantages: they are lightweight, malleable, low-maintenance, waterproof, and corrosion-resistant.

New Uses. Because of lead's special properties, several new applications have developed, which represent advances over currently available materials. These new uses include:

1. Computer Chips. Lead has been instrumental in developing a new stable memory chip for computers that represents a major technological breakthrough because of its ability to retain data even when power is shut off. The conventional silicon chip lacks that capability and we know of no other substance that can provide it.

2. Lead Acid Load Levelling Batteries. Working with the Electric Power Research Institute, the International Lead Zinc Research Organization is examining the cost-effectiveness of a giant lead acid load levelling battery that could provide standby power during periods of peak electrical use and would eliminate the need to keep generators operating on so-called spinning reserve in order to meet peak needs. Use of these batteries could reduce fossil fuel consumption at electric power plants and lessen accompanying air pollutant emissions.

3. Radon Barrier Systems. A new sheet lead radon barrier system has been developed to combat the hazards posed by radon gas. If it proves effective and commercially viable in new homes, a counterpart retrofit system will be developed for existing homes. As radon in the environment is considered a leading cause of cancer deaths, the success of this project would provide important health benefits.

4. Molten Lead-based Electrical Energy. Extensive research has been done in Israel on a power generator, called ETGAR 3, capable of creating electrical energy directly from molten lead. A demonstration program is now underway.

5. Earthquake Shock Absorbers. The Japanese have begun to incorporate lead in building foundations to absorb earthquake shock. We believe it is only a matter of time before this technique is used in the United States as well.

6. Anti-oxidant Asphalt. A new lead-stabilized asphalt offers significant performance advantages over existing asphalts, which are subject to deterioration caused by oxidation. Testing is underway in Canada and has so far shown effective improvements compared to alternative products, and a lack of environmental hazard.

As I stated above, as additional information is developed we will pass it on to you.

Sincerely yours,

Jeffrey L. Zelms

Jeffrey L. Zelms
Chairman

JLZ/llm

STATEMENT OF ROBERT J. MUTH
VICE PRESIDENT--GOVERNMENT AND PUBLIC AFFAIRS
ASARCO INCORPORATED

ON S. 2637 AND S. 2593

BEFORE THE
SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL
OVERSIGHT, RESEARCH AND DEVELOPMENT
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

June 27, 1990

Mr. Chairman and Committee members, I am Bob Muth, vice president of ASARCO Incorporated (Asarco). Asarco is one of the world's major producers of nonferrous metals and minerals including lead with mines and plants here and abroad. I would first like to thank the Subcommittee for the opportunity to present Asarco's views on the proposed Lead Exposure Reduction Act of 1990 (S. 2637) and the Lead Ban Act of 1990 (S. 2593).

Asarco has taken an active role in addressing the potential health and environmental problems associated with lead in the environment. We have urged EPA and Congress to take action in several areas to reduce exposures to lead. We have urged EPA to mandate reduction in corrosivity of water supplies to prevent leaching of lead into drinking water. Through the Lead Industries Association (LIA), we supported the Lead Paint Poisoning Prevention Act, and Asarco was one of the first companies in our industry to publicly and vigorously support enactment of the Superfund law. In your last hearing on this subject we announced support for enhanced measures to address exposures from deteriorating lead-pigmented paint. We also support additional regulatory measures to protect consumers from unnecessary exposures to lead in products.

Asarco supports measures that provide needed protection of human health and the environment to reduce exposures from historic uses of lead alloys and chemicals. Certain provisions in S. 2637 and S. 2593 advance this goal. For instance, we support enhanced battery recycling and increased funding for properly designed programs aimed at controlling exposures from deteriorating old lead paint. We would recommend an even stronger program for research and development of new and better methods to target and expeditiously treat individuals and homes where dangerously high blood levels are related to deteriorating paint. We would support appropriate restrictions on selected existing uses of lead where the restrictions are supported by an adequate record. We would also support increased scrutiny of proposed new uses insofar as these measures are shown to be necessary to protect human health and the environment.

Unfortunately, Asarco cannot support enactment of either bill in its current form for a number of reasons. First, S. 2637 sets a dangerous precedent that would stifle research and technology innovation. The bill sets an impossible standard for new products (under section 405) by providing for a ban even where no feasible substitute may exist. There is no consideration of the benefits of new uses. Since this provision would likely also be adopted for materials other than lead if this bill passes, the result would be to arbitrarily gut research and development programs that cut across a number of technological areas.

Second, both bills may actually result in greater threats to human health and the environment. S. 2637, in banning new lead products under section 405, and S. 2593, in banning selected products in sections 105, 106, and 203, do not consider the health and environmental risks that the substitutes for lead pose or the existing risks the new product would mitigate.

Potential substitutes are probably other metals (or, in some cases, synthetic organic chemicals) that may pose equal or greater risks to health and the environment (e.g., mercury in paint). A real danger exists of substance-by-substance regulation without assessing the risk of substitutes. This should be apparent from this country's experience in regulating certain hydrocarbon uses without considering that ozone-depleting CFCs would be substituted.

Further, prohibition of these new products deprives society of their benefits. For some products, such as cosmetics, this is less of a concern. At the other extreme, however, while we can't foresee the future, it is not implausible that new medical diagnostic/treatment technologies may depend on advanced lead-shielding systems.

The third problem, which applies to both these bills, is that they spread the misperception that dangerous exposure to lead is widespread as a result of lead-containing products being disposed of in municipal solid waste. Section 201 of S. 2593 specifically addresses this concern. The fact is that the data do not support this concern.

Several independent studies show that lead-bearing municipal solid waste can be safely managed whether it is land disposed or incinerated. The studies, including work done by Resources for the Future and by NUS on behalf of EPA and the Council on Resource Recovery and the Environment, indicate that properly managed municipal solid wastes produce leachate containing lead levels below EPA's levels of concern. These studies are attached. Asarco has consistently supported efforts to ensure the proper management of solid waste. We most recently supported bills sponsored by Senator Burdick (S. 196) and Representative Luken that would have ensured the safe management of municipal solid waste incinerator ash.

Finally, S. 2637 and S. 2593 focus on the uses of lead that pose the smallest lead-related risks to society. S. 2637 focuses on a broad range of current and new uses. Only 7 of the 35 pages of the bill address abatement of deteriorating lead paint. S. 2593, likewise, pays much greater attention to banning or controlling current lead-containing products.

The situations posing greatest potential basis for concern involve uses that are no longer permitted. In order to correct this imbalance in the bills, Asarco suggests a number of improvements that would specifically address deteriorating old lead paint.

As I stated in my testimony at the March 8, 1990, hearing, lead exposure from old paint is an issue that Congress should address. Thus, we are committed to assisting in the effort to identify cost-effective techniques to classify and treat homes that present a risk of significant lead exposure due to paint.

Asarco is pleased therefore that both S. 2593 and S. 2637 address the issue of old paint. In particular, the Reid-Lieberman legislation provides Center for Disease Control, EPA, HUD, and other federal agencies the authority to undertake much needed activities, including the development of:

- standards for laboratory analysis of lead in paint films, soil, and dust;
- certification standards for lead-paint abatement workers;
- evaluation of existing and emerging abatement technologies; and
- guidelines for the disposal of abatement debris.

However, neither bill, especially S. 2593, goes far enough in addressing this important issue.

The section of S. 2637 that addresses this issue should be strengthened in several ways. First, community blood lead screening programs should be restored, expanded, and strengthened. Specifically, we endorse the congressional authorization of $22 million to Centers for Disease Control to provide grants to municipalities for screening programs; in fact, we would recommend doubling that amount.

Second, the provision in S. 2637 to evaluate the effectiveness of abatement and management techniques does not base the efficacy of abatement on reduced blood lead levels or improved health effects, and it should. It is inappropriate to measure the efficacy of lead paint abatement programs solely as reductions in lead-bearing dust levels because other sources of lead may be contributing to the problem. Therefore, abatement and management techniques should be evaluated by considering the health benefits of the given technique instead of relying on proxies such as lead-bearing dust.

The scope of the criteria for evaluating both existing and emerging abatement techniques should also be expanded to include the potential health risks and costs of these techniques. For example, the potential risks that should be evaluated include those:

- to workers engaged in abatement;
- to occupants after abatement;
- during transportation of debris; and
- from disposal of debris.

The costs that should be considered when evaluating a given technique include:

- capital;
- labor;
- maintenance;
- disposal;
- the cost of sampling and analysis; and
- costs of relocation assistance and temporary housing during abatement.

In addition, the bill should require the development and implementation of educational programs aimed at reducing the risks posed by the past uses of lead-containing products including minimum core curricula for worker abatement training courses.

Finally, Asarco believes that the development of a comprehensive national strategy is necessary to effectively address and resolve the issue of lead exposure from old paint. Such a national program could help to coordinate and effectively use information that generate activities as initiated by S. 2637. Thus, we propose that Congress require EPA, in coordination with other relevant federal agencies, to develop a national strategy for both the short-term and long-term management of this issue. Development and implementation of such a strategy will help ensure that true health and environmental benefit is gained from the expenditure of public and private resources.

In conclusion, Asarco encourages sound legislation addressing situations where a genuine basis for concern exists and we want to continue to work with the Committee to fashion such legislation, but S. 2673 and S. 2593 are not bills we can support in their current form.

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ASSOCIATION OF METROPOLITAN WATER AGENCIES
Before the Subcommittee on Toxic Substances, Environmental
Oversight, Research and Development
Committee on Environment and Public Works
U. S. Senate

Statement on
S. 2637, the Lead Exposure Reduction Act of 1990 and
S. 2593, the Lead Ban Act of 1990

June 27, 1990

ASSOCIATION OF METROPOLITAN WATER AGENCIES
Before the Subcommittee on Toxic Substances, Environmental Oversight, Research and Development
Committee on Environment and Public Works
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Statement Presented June 27, 1990 on
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S. 2593, the Lead Ban Act of 1990

Mr. Chairman, my name is Dr. L.D. McMullen and I serve as the General Manager of the Des Moines Water Works, Des Moines, Iowa. I also serve as Chair of the Association of Metropolitan Water Agencies' Legislative Committee and I am hear today to speak on the Association's behalf.

The Association of Metropolitan Water Agencies (AMWA) is a non-profit organization comprised of the directors and managers of the nation's large municipal water supply systems. Our membership includes cities from Los Angeles to New York, Houston to Chicago, Tampa to Seattle and Las Vegas to New Haven. AMWA members provide safe, high quality drinking water to over 70 million people. All AMWA agencies are public water supply systems regulated under the Safe Drinking Water Act.

Mr. Chairman, it is a pleasure for me to be here to discuss S. 2637, the Lead Exposure Reduction Act of 1990 and S. 2593, the Lead Ban Act of 1990. Lead in the environment is an important issue and has in fact been a subject discussed in great detail by the AMWA membership over the past year.

The members of AMWA believe that the future of our country is dependent upon the health and uninhibited mental abilities of our children, and we will put forth our utmost efforts to work with you to guarantee that this future is a bright one. In this regard, the association supports the goal of reducing the exposure of the population to harmful levels of lead, from whatever sources. Inasmuch as these proposed legislative initiatives seek to further this goal, they are very laudable endeavors.

Mr. Chairman, since our time this afternoon is short, my statement will be brief and focus first on the provisions of S. 2637 that have the greatest impact on municipal water suppliers and secondly discuss some of the other major provisions of both S. 2637 and S. 2593.

S. 2637, The Lead Exposure Reduction Act of 1990

Section 5 of S. 2637, the Lead Exposure Reduction Act of 1990 provides that if within one year of the enactment of this bill into law, EPA has not set a standard for lead at the "end user's tap", the standard will be promulgated to be 5 micrograms per liter.

Our members supply water to their customers at a point of delivery which is generally a plumbing connection outside the private home, multi-family residence, commercial or industrial facility. We control the treatment and distribution facilities up to that point of delivery and we are committed to doing everything possible to ensure the safety of the water we deliver to that point. For that reason we have supported a more stringent MCL at the point of delivery.

However, it is our position Mr. Chairman, that a standard at the "end user's tap" (if defined such as the tap at your kitchen sink) places water utilities in a position of being legally responsible for plumbing and fixtures that we simply do not own or control. Even more important, we believe, a standard at the tap for lead is not the most effective means of reducing lead in drinking water, gives the homeowner a false sense of security (i.e. the water utility will take care of the problem) and is not the most effective way to protect human health.

Unlike some contaminants found in the environment, there is very little, if anything, mysterious about lead. Its sources are identifiable whether it be in air, soil or water. Most lead found in drinking water comes from pipes, solder or fixtures and is leached into the water through corrosion. Lead may be introduced by the home plumbing environment, home plumbing fixtures and increase in concentration due to stagnant conditions.

AMWA supports now, as we have always supported, regulation of lead in drinking water. In demonstration of this support, we have worked with the U.S. Environmental Protection Agency and members of Congress to support tighter requirements for lead in drinking water. We have also urged EPA to finalize the revised national primary drinking water regulation for lead by the currently targeted December 1990 deadline.

AMWA has also developed a draft legislative plan that we believe sets forth a program for the control of lead in drinking water that would prove effective in the protection of human health, would educate the public about the risks of exposure to lead and how to reduce those risks in addition to being workable for water supply utilities.

This plan supports an MCL for lead effective at representative points in the distribution system, sampling in homes for diagnostic purposes so that individual homeowners can be made aware of the lead being contributed to their drinking water by their plumbing, corrosion control studies when a specified percentage of the home tap samples exceed a related level and public education programs. AMWA also supports a ban on home plumbing fixtures that contribute lead to drinking water and strict enforcement of the Safe Drinking Water Act ban on lead pipes, solder and flux.

We have shared a copy of the legislative plan with your staff so I will not go into it in any more detail here but we would be very happy to meet with you or your staff to discuss it further.

If there is one message we would hope to convey to the Subcommittee this afternoon it is that there are avenues of lead contamination which are simply outside of our control and that an MCL at the tap of 5 micrograms per liter makes water suppliers legally responsible for things we do not control and cannot be achieved as envisioned in the bill.

That is not to say that there is not a better and more effective means of dealing with the problem of lead in drinking water. And as I mentioned earlier we would be happy to discuss this with you at your convenience.

Other Provisions

Just a few comments on some of the other provisions of S. 2637 and S. 2593.

AMWA strongly supports the prohibition on the use of lead pipes, solder and flux contained in the Safe Drinking Water Act Amendments of 1986. We have urged EPA to move aggressively to enforce the prohibition which is essential if reduction of lead in the homeowner's plumbing system is to be achieved. We support the provision contained in S. 2593 which requires EPA to develop a system for identifying lead solders sufficient to prevent the inadvertent or unlawful use of lead solders by individuals engaged in the installation or repair of any public water system or any plumbing used for human consumption.

Another area of significant concern to AMWA are plumbing fixtures that contribute to drinking water contamination. It has become clear that brass water faucet fixtures contribute a substantial amount of lead to the water consumed by the public. Because these plumbing fixtures are outside of the control of water supply systems, and can not be affected by any means within the water suppliers control, the only means of ensuring that they do not contribute to the consumer's ingestion of substances such as lead, is through product testing.

Research conducted on the causes of lead in drinking water for the Des Moines area since 1987, by the Des Moines Water Works, verifies our concerns regarding the contaminant contribution of plumbing fixtures. Initial research indicated the cause of lead contamination was directly associated with age of property, in that newly constructed properties tended to show higher concentrations of lead in the drinking water delivered through the tap. This is not new information to the research community. However, further research showed the primary source of contamination was often the plumbing fixtures themselves. This conclusion was formed when comparing results of 100 ml samples, which showed concentrations in the range of 20 ppb on first draw, to those of 1 liter first-draw samples, whose concentrations were in the range of 2 ppb.

Members of the Subcommittee, AMWA strongly recommends that the Administrator be given the authority to test and ban plumbing fixtures that contribute contaminants to drinking water.

AMWA supports Section 404 of S. 2637 which requires the lead content of products be labelled accordingly. We also support Section 406 of the bill which establishes a lead battery recycling and labeling program. The Des Moines Water Works has actively participated in the Toxic Clean-Up Day event, co-sponsored by the Des Moines Metropolitan Area Solid Waste Agency. In 1989, 800 lead acid batteries were collected along with numerous other hazardous materials. Plans are underway for the 1990 event, and Des Moines Water Works again will be participating. Pollution prevention is essential to ensuring that the public is not continuously placed in a position of paying the high cost of clean-up.

AMWA also supports the provision contained in S. 2637 requiring HHS and EPA to undertake a long-term research project to study sources of lead exposure in children who have elevated blood lead levels including the contribution to lead body burden from drinking water.

Finally, we would like to recommend that Congress consider a tax credit for homeowners to help pay for replacement of lead plumbing. As I mentioned in some detail earlier, much of the lead found in drinking water comes from inside the house, and in some instances, the cost of the solution will be significant. We also urge the residential finance community to require the testing of home plumbing for lead content prior to the sale or resale of residential property. This would reinforce your and our efforts to better educate the public on what needs to be done.

Mr. Chairman, this concludes my remarks. I would be very happy to answer any questions you may have.

TESTIMONY

Mr. David Serls

INSTITUTE OF SCRAP RECYCLING INDUSTRIES

Before the

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

June 27, 1990

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Mr. Chairman, I am pleased to have this opportunity to comment on S. 2637, legislation to reduce the levels of lead in the environment. My name is David Serls, I am President of the Institute of Scrap Recycling Industries, Inc. (ISRI). ISRI represents more than 1,700 processors, brokers, and consumers of scrap metal, paper, glass, plastic and textiles, and suppliers of goods and services to the industry.

The Institute supports efforts to reduce or eliminate the use of toxics in manufactured articles. We are especially concerned about such toxics where their use impedes successful recycling. While S. 2637 applies directly to lead it also applies indirectly to the full range of ferrous and non-ferrous scrap which the recycling industry handles, with serious negative potential on future recycling. We do not believe that the authors of the measure intended to harm the recycling effort, indeed we know the intent is to maximize safe and legitimate recycling, thus we ask the Committee to view our comments as constructive criticism.

We are concerned that S. 2637 includes the term "process" and "distribute" in its list of activities to be banned where certain products are used. Neither EPA nor the Congress has ever provided a clear definition of processing as used in TSCA. Thus, under the circumstances, we must assume that recycling is included. If that is the case, then the scrap industry could no longer recycle painted bridge beams, soldered pipe, plastics, brass and copper plumbing fittings, construction materials, curtain weights, etc. These would in all likelihood contain more than the amount of lead set forth in the bill and we would have to turn them away from our facilities. They would be landfilled instead, adding at least six to ten million tons a year to the solid waste disposal stream.

For instance, Mr. Chairman, this country recycles 6 million tons of copper, brass, bronze, and related non-ferrous scrap each year. Much of that recycling would be prohibited under the legislation. We believe these products would pose a far greater danger in a landfill than in our facilities. For instance, the lead paint on a bridge beam could pose problems in a landfill -- but when our industry sends it back to the steel mill, such residual lead is trapped by the environmental controls now required in steel production.

The bill notes clearly in the "findings" section the "highly dispersive" uses of lead in a variety of products. Because that unlimited use continues to this very day, countless products (see appendix A, attached) are in the economy and will enter the recycling system containing such lead content. To the extent the terms "process" and "distribute" would apply to the recycling of those items, the bill would bar such activity. Thus, the bill must remove that confusion over the application to recycling and state clearly that the terms apply only to the addition of lead to new products, not the processing or distribution of existing products in the recycling process.

The inventory required in Section 403 could, likewise, pose severe problems. It would require us to file all the different varieties of copper, brass, and other scrap that exist -- a number equal to all the possible uses of those metals -- with the EPA. This information would then be used in an inventory of leaded products. Section 405 would bar us from recycling any copper, brass, bronze or other scrap which is not listed in this inventory. A scrap processor would have to check all inbound scrap -- which is usually mixed among several different types of scrap -- and try to determine whether or not all the material in the truck was listed in the EPA inventory, and then exclude that which is not. If it is not so listed, the bill's provisions would preclude our industry from recycling it. We hope the Subcommittee can agree with us that recyclables should not be included in the legislation.

Our focus is on S. 2637; S. 2593 by Senator Bradley does not have a similar negative potential impact on recycling. However, we are interested in the issue of battery recycling and our comments today will focus broadly on this issue, with implication for both measures.

Many of ISRI's members accept batteries -- paying the market value for them -- consolidating but not processing them, and in turn selling them to secondary lead smelters which have obtained appropriate permits as required by EPA. Combined, our membership probably handles more scrap batteries than any other single organization.

Under S. 2637's provisions, it would be unlawful for an individual to deliver a battery to ISRI's members. This would make it more difficult for the public to have their batteries returned to commerce, and thus would lower the battery recycling rate and could increase the amount of lead/acid batteries in the waste stream. We respectfully urge the Subcommittee to include the scrap industry among those eligible to receive batteries under the provisions of the bill, including listing the industry on all required signs and labels.

Having made this request, Mr. Chairman, I would like to add that fewer and fewer of our members will accept scrap batteries. Because RCRA defines scrap lead as a waste, and not the raw material that it is, anyone delivering scrap lead to a smelter for reuse has, as far as RCRA and Superfund are concerned, "arranged for disposal of a hazardous substance." Obviously, the person who returned a scrap battery for recycling did not "arrange for disposal" of anything; he arranged to have it reused. But the term applies nonetheless, and anyone returning scrap batteries is jointly and severally liable for any harm caused by the smelter. Our processor members do not break batteries and do not smelt them; all they do is consolidate them, and properly pack and ship them for recycling purposes. Yet they become liable for the breaking and smelting done downstream. By applying the heavy hand of Superfund to a recycling activity that should be encouraged, Congress has inadvertantly chilled the recycling of scrap batteries. Prudent risk management tells our members that unlimited joint and several liability for a product that has only limited value, such as a scrap battery, is a bad investment. If the Subcommittee wants to help ensure that all scrap batteries are returned for reuse, the best way to do so would be to make clear in S. 2637 or S. 2593 that the return of scrap batteries to a smelter for reuse shall in no way constitute an "arrangement for disposal" of a hazardous substance.

The concept of a "product" (p. 11, line 15) needs to be addressed. Is the product label to be applied to each component of an automobile or is it to be applied to the entire vehicle? If the latter is the case, may individual components exceed the 0.1 percent rule so long as the total is within that limitation or must each component address the maximum separately?

In sum, Mr. Chairman, we look forward to working with the Subcommittee to resolve any differences over language or terms. We are appreciative of your long-standing commitment to recycling, and feel confident that we can work together both on TSCA as well as RCRA and other matters.

EPA

Characterization of Products Containing Lead and Cadmium in Municipal Solid Waste in the United States, 1970 to 2000

Final Report

Executive Summary

Prepared for
United States
Environmental Protection Agency
Municipal Solid Waste Program
by Franklin Associates, Ltd.
Prairie Village, Kansas

EXECUTIVE SUMMARY

As disposal of municipal solid waste (MSW) has become an issue of increasing importance in the United States, combustion of wastes has been recognized as one of several alternative management approaches. A concern associated with municipal waste combustion, however, is that heavy metals (lead and cadmium in particular) have been found in analytical tests of the ash from these facilities. This report characterizes the sources of lead and cadmium in products disposed in MSW over the time period 1970 to 1986, with projections to the year 2000.

LEAD IN MUNICIPAL SOLID WASTE

Lead is widespread in the municipal waste stream; it is in both the combustible and noncombustible portions of MSW. Discards of lead in MSW are overwhelmingly greater than discards of cadmium (Figure 1).

Lead-acid batteries (primarily batteries for automobiles) rank first, by a wide margin, of the products containing lead that enter the waste stream. Trends in quantities of lead discarded in products in MSW (ranked by tonnage discarded in 1986) are shown in Table 1. The last two columns on the table indicate whether the total tonnage of lead in a product is generally increasing or decreasing, and whether the percentage of total MSW lead contained in a product is increasing or decreasing.

Changing trends in discards of lead are illustrated in Figure 2. Lead discards in batteries are shown to be growing steadily, as are discards in consumer electronics. Discards of leaded solder in cans and lead in pigments, however, virtually "disappear" from the graphic between 1970 and 1986. Lead discards in other products are shown to be relatively small.

Findings about the individual products in MSW that contain lead are:

* Lead-acid Batteries contributed 65 percent of the lead in MSW in 1986; this percentage has ranged between 50 and 85 percent during the 1970 to 1986 period studied. The tonnages in Table 1 represent discards after recycling, but of all the products considered, only lead-acid batteries are recycled to a significant extent. Recycling rates, which have ranged from 52 to 80 percent, have a major effect on the tonnage of lead-acid batteries discarded.

* Consumer Electronics (television sets, radios, and video cassette recorders) accounted for 27 percent of lead discards in MSW in 1986. They contribute lead from soldered circuit boards, leaded glass in television sets, and plated steel chassis. Leaded glass accounts for most of the lead in these products.

* Glass and Ceramics, as reported here, include lead in products such as glass containers, tableware and cookware, and other items such as

Figure 1. Relative discards of lead and cadmium in MSW, 1986.

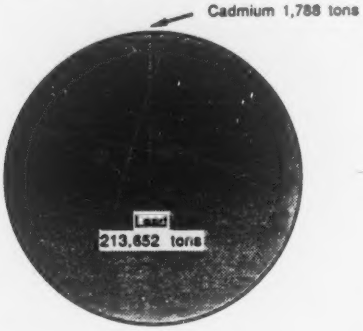
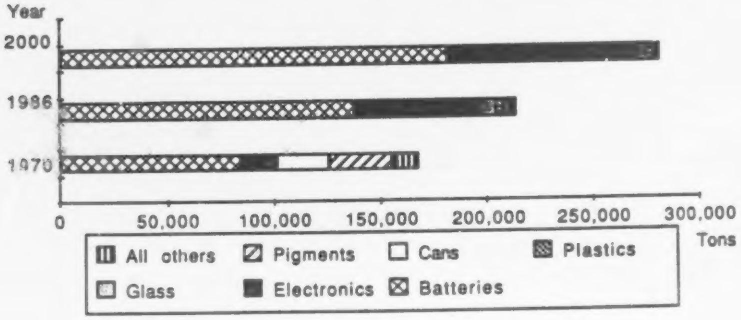


Table 1

LEAD IN PRODUCTS DISCARDED IN MSW, 1970 TO 2000
(In short tons)

Products	1970	1986	2000	Tonnage	Percentage
Lead-acid batteries	83,825	138,043	181,546	Increasing	Variable
Consumer electronics	12,233	58,536	85,032	Increasing	Increasing
Glass and ceramics	3,465	7,956	8,910	Increasing	Increasing; stable after 1986
Plastics	1,613	3,577	3,228	Increasing; decreasing after 1986	Fairly stable
Soldered cans	24,117	2,052	787	Decreasing	Decreasing
Pigments	27,020	1,131	682	Decreasing	Decreasing
All others	12,567	2,537	1,701	Decreasing	Decreasing
Totals	164,840	213,652	281,887		

Figure 2. Lead in discards of products in MSW, 1970, 1986, anc 2000.



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optical glass. These contributed 4 percent of lead discards in 1986. (Leaded glass in light bulbs is included in the "All Other" category in Table 1.)

* Plastics use lead in two ways: As a heat stabilizer (primarily in polyvinyl chloride resins) and as a component of pigments in many resins. This category, which includes products such as nonfood packaging, clothing and footwear, housewares, records, furniture, appliances, and other miscellaneous products, accounted for about 2 percent of lead discards in 1986. Plastics in consumer electronics products are counted under that category.

* Soldered Cans have experienced a large decline in usage since 1970, when they contributed 14 percent of the lead in MSW. Leaded solder is currently used in steel food cans, general purpose cans (like aerosols), and shipping containers.

* Pigments containing lead compounds have declined greatly since 1970, dropping from 18 percent of total lead discards to less than one percent. This category includes pigments used in paints, printing inks, textile dyes, etc. Pigments used in plastics, glass and ceramics, and rubber products are accounted for in those categories.

* All Others include brass and bronze products, light bulbs (which contain lead in solder and in glass), rubber products, used oil, collapsible tubes, and lead foil wine bottle wrappers. Collapsible tubes contributed over 5 percent of total lead discards in 1970, but their use has declined dramatically since then. None of the other items has exceeded one percent of the total since 1970.

CADMIUM IN MUNICIPAL SOLID WASTE

Like lead, cadmium is widespread in products discarded into MSW, although it occurs in much smaller quantities overall. Since 1980, nickel-cadmium household batteries have been the Number 1 contributor of cadmium in MSW.

Trends in quantities of cadmium discarded in products in MSW (ranked by tonnage discarded in 1986) are shown in Table 2.

Trends in discards of cadmium in products in MSW are illustrated in Figure 3. Discards of cadmium in household batteries were small in 1970, but then increased dramatically. Cadmium discards in plastics are relatively stable. Discards of cadmium in consumer electronics are shown to decrease over time, while the other categories are relatively small.

Findings about cadmium discards in individual products in MSW are:

* Household Batteries (rechargeable nickel-cadmium batteries) have accounted for more than half of cadmium discards in the U.S. since 1980. This growth is projected to continue unless they are replaced by another type of battery.

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July 12, 1990

The Honorable Harry Reid
Chairman
Subcommittee on Toxic Substances, Environmental
Oversight, Research and Development
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Senator Reid:

The Institute of Scrap Recycling Industries, Inc. (ISRI), is very grateful for our recent opportunity to appear before your Subcommittee on S. 2637, legislation to reduce lead exposure. During the hearing, you asked for more details regarding the size and nature of the scrap industry, as well as its capacity to handle scrap batteries.

First, with regard to our capacity to process batteries, according to an informal survey of secondary lead smelters conducted by our staff, approximately forty-five percent of all batteries returned for remelting went through a scrap processing facility. We do not open these batteries or expose their contents to the environment in any way; instead we pack and ship them for remelting at a smelter. Given the simplicity of the system, ISRI members' capacity to process batteries can easily expand, provided that there is sufficient demand for secondary lead.

Second, with regard to the size and nature of the scrap industry, ISRI represents 1,750 member companies who process, broker, and consume over 90 million tons of recyclable material annually. The enclosed _Facts_ booklet provides greater detail on the types and amounts of scrap handled in the United States each and every year. We also enclose some related literature. ISRI members are present in virtually every state. The average scrap facility has 49 employees. Our total investment in plant and equipment exceeds $6 billion.

If members or staff of the Subcommittee desire further information on the industry, please do not hesitate to call upon us.

Sincerely,

J Thomas Wolfe

J. Thomas Wolfe
Counsel/Manager of Government Relations
Institute of Scrap Recycling Industries

copy: Senator John Warner
Senator Joseph Lieberman
Mr. David Serls

Testimony

of

David G. Boltz

Manager of Environmental Regulatory Affairs - Waste Management
Bethlehem Steel Corporation

on behalf of

American Iron and Steel Institute

Before the

Subcommittee on Toxic Substances, Environmental Oversight, Research and Development

of the

Committee on Environment and Public Works
United States Senate

on

S. 2593
Lead Ban Act of 1990

and

S. 2637
Lead Exposure Reduction Act of 1990

June 27, 1990

Senator Reid and members of the Subcommittee on Toxic Substances, Environmental Oversight, Research and Development, my name is David Boltz. I am Manager of Environmental Regulatory Affairs - Waste Management in the Environmental Affairs Department of Bethlehem Steel Corporation. I am here today on behalf of the American Iron and Steel Institute (AISI), a trade association representing the iron and steel industry of the United States. AISI's comments are directed to both S. 2593, the proposed "Lead Ban Act of 1990", and S. 2637, the proposed "Lead Exposure Reduction Act of 1990."

The steel industry supports reasonable legislation designed to control the commercial use of lead so as to protect human health and the environment. However, we are concerned with certain ambiguous wording in Section 203 of of S. 2593, and one provision that would impose unreasonable requirements on the steel industry. We also fear that S. 2637 could result in severe economic problems for a portion of the steel industry by imposing stringent limitations on the use of protective lead coatings and lead additions to steel products.

Section 203(c) of S. 2593 sets forth limitations on the concentration of incidental lead in any package or packaging component. Our first problem is that the language of this provision applies to both the package and any packaging component. We are specifically concerned with the definition of "packaging component." Our second problem is the ultimate concentration limitation of one part per million that would apply to the incidental presence of lead. Such a limit is unreasonable and technically unattainable.

Before I discuss each of our concerns, I would like to take a few moments to outline current steel industry processes for the production of tin-coated steel which is ultimately used for food and beverage containers or "packages". After the steel is rolled to the desired thickness and the surface is properly prepared, a thin layer of tin is electroplated to each side of the strip. The tin-coated steel is then given a final surface treatment using a dichromate solution. Electroplated coatings typically contain impurities such as lead that are present in the raw materials used to produce the coatings. The tin used for the production of electrolytic tinplate for food containers is designated as Grade A tin and must contain no more than 0.05 percent or 500 parts per million (ppm) lead. The tin anodes are electrochemically dissolved to provide the tin ions for electroplating. Impurities such as lead are carried along with the tin and are either plated or absorbed into the tin coating. Studies have shown that the tinplate will contain approximately the same amount of lead that is found in the tin anode.

Two separate research studies done at U.S. Steel's electrotinning lines a few years ago found that the lead concentration in the tin anodes varied from 0.016 percent to 0.040 percent. The average was 0.029 percent. At the same time, the electroplated coatings produced from these anodes were found to contain an average of 0.036 percent lead with a range of 0.017 percent to 0.056 percent. Of course, this lead is present as incidental lead because it was introduced onto the steel as a contaminant in the tin coating material.

The major source of lead in tin-plated food containers was eliminated during the past few years by the substitution of drawn and ironed and draw-redraw two-piece containers, and wire-welded three-piece containers, for the three-piece cans with lead-tin alloy soldered side-seams.

Now, with regard to AISI's first problem, we believe that it is possible to interpret Section 203(c) in at least two ways. Section 203(c) is as follows:

> "Notwithstanding subsection (a) of this section, the aggregate of the concentration levels, from any incidental presence of lead present in any package or packaging component shall not exceed the following:"
>
> (This paragraph goes on to list the concentration limitations for incidental lead that apply in the second, third, fourth, etc., 12-month periods following the date of enactment. The limit starts at 600 ppm and decreases to 1 ppm by the end of the fourth year following the date of enactment.)

The first interpretation would focus on the word "package" as it is defined in Section 202 of the bill, i.e., "a container providing a means of marketing, protecting, or handling a product . . . ." In this instance we believe that a container made from tin-coated steel qualifies as a package because a steel can which is uncoated would not be able to provide a safe or reliable means of marketing, protecting or handling a product. A tin-coated steel can, considered as a single item, would be able to meet the bill's 100 ppm limit for incidental lead, but we do not know of any technology that would allow such a can to meet a one ppm limit.

However, we are aware of another possible interpretation: that any "packaging component" would have to be evaluated for its incidental lead content separate from the package it is associated with. Because the term "packaging component" includes "coatings," AISI is concerned that EPA, for enforcement purposes, could maintain that all coatings, whenever applied, would have to be evaluated separately. However, the definition of "packaging component" in Section 202 refers to any "individual assembled part of a package" and goes on to list specific examples. In my earlier discussion of the steel coating process I noted that the tin is applied to the steel in the steel plant, and then cans and other packages are made from the tin plate by fabricators. Tin plate is one of the materials used to make a can, therefore it constitutes an individual part of an assembled can while other materials, such as lacquer coatings, labels, etc., would be separate parts added to the tinplate either before or after it is formed into a can.

In view of the bill's definitions of "package" and "packaging component," AISI believes that the intent of this legislation is to require tin-coated steels, as opposed to any individual coatings applied to steel sheet at the steel mill, to meet applicable limits for incidental lead. If this interpretation is correct, AISI requests that it be confirmed in some way--either in the bill itself or in the legislative history of the bill.

I now want to focus on the proposed one part per million limitation on incidental lead in Section 203(c)(4), which would be effective four years following the date of enactment. This requirement is simply unreasonable; it seems to be very arbitrary and we doubt that it can be shown to be necessary to protect human health and the environment. The only tin supply which approaches this level of purity is the tin obtained from commercial detinning operations (i.e., removing the tin coating from used cans or damaged tin-plated steel), but there are preferential uses for this grade of tin in the pharmaceutical and chemical industries. Besides, the steel industry's needs could not begin to be met from this limited secondary source of tin.

We believe that EPA's recently promulgated test for evaluating the potential toxicity of waste materials, the Toxicity Characteristic Leaching Procedure (TCLP), should serve as an objective reference for purposes of setting a lower allowable limit for incidental lead. The TCLP was designed by EPA to simulate reasonable worst case disposal conditions. Based on test work conducted by Bethlehem Steel on a sample of common commercial tin plate, where the tin coating contains several hundred ppm of incidental lead, we found that the level of lead in the leachate was below the limit of detection, i.e., below 0.2 milligrams per liter (mg/l). Thus the leaching characteristic of a discarded tin-coated steel can, exclusive of other components, is far below the 5 mg/l level at which EPA would be concerned about a potential threat to human health or the environment.

We therefore strongly recommend that lines 12 and 13 on page 10 of S. 2593, which specify a one ppm limit for incidental lead, be deleted. A limit of 100 ppm, as recommended by the Source Reduction

Council of the Coalition of Northeastern Governors (CONEG) in its model toxics control legislation, seems to strike a proper balance between available raw materials, technology, and health concerns, and it would avoid the severe and unnecessary disruption in the canmaking industry that would occur if a one ppm standard is enacted for incidental lead.

It is important to note that the Source Reduction Council is comprised of representatives of [illegible] northeastern governors, major national manufacturing companies, and national and regional environmental groups. The model legislation developed by the Council was approved unanimously by Council members in December 1989 and was subsequently accepted by the nine governors as a means of providing appropriate control of lead in packaging. By the way, the Council's 100 ppm limit for incidental lead is well below the Consumer Product Safety Commission's standard for children's toys.

Finally, I want to discuss some practical aspects of lead-tin alloy coatings and leaded steels that would be subject to administrative controls under S. 2637.

Several domestic steel companies produce terne-coated steel sheet. Terne coatings are an alloy of lead and tin, typically about 92 percent lead and 8 percent tin. Both lead and tin are highly corrosion-resistant. However, to enhance the corrosion protection further, a thin layer of nickel is electroplated onto the steel before immersion of the steel sheet into the molten, lead-tin alloy coating bath.

A major portion of the terne-coated sheet production is used in the manufacture of fuel tanks for the tractor, truck, and automotive industries. Automotive fuel tanks are usually drawn in two halves, top and bottom, and seam-welded around the perimeter. These draws are frequently very severe, and the presence of the lead-tin alloy coating facilitates the drawing process greatly, and frequently precludes the formation of cracks. Other automotive parts manufactured from terne-coated sheet include water distributor tubes, radiator parts, oil pans, and air cleaners. Other uses are for roofing, fire extinguishers, fire-doors, radio and TV chassis, and condenser and capacitor cans.

The amount of lead in the terne-metal coating (92%) is obviously an intentional addition. If lead were banned or severely restricted from products such as these, the terne coating industry would be devastated.

Finally, I would note that lead is intentionally added to steels that are intended for the production of bar, rod, wire, plate and tubular products, to increase productivity in the manufacture of machined parts. For such applications the lead contained in the steel is most often in the range of 0.15 to 0.35 weight percent. More than 300,000 tons of such steels are used annually in the United States. Banning or severely restricting the production of leaded steels in the United States would have a serious economic impact due to reduced productivity for machined parts, and the prohibitive cost of law enforcement to prevent the importation of steel bars and components containing lead.

AISI appreciates this opportunity to present our views on this legislation to you. I would be happy to answer any questions you may have concerning our position on this legislation.

# # #

STATEMENT OF DAVID E. WALDRON
VICE PRESIDENT - MARKETING
COOKSON PIGMENTS, INC.

ON S. 2593 and S. 2637

BEFORE THE
SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT, RESEARCH AND DEVELOPMENT
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

June 27, 1990

Mr. Chairman and Members of the Committee, I am David E. Waldron, Vice President - Marketing, Cookson Pigments, Inc.

S. 2637 adds to the Toxic Substances Control Act a new Section 402 which includes a subsection which bans the use of lead in plastic additives, printing inks and pigments. This provision would drive Cookson Pigments out of business and is therefore of great concern to the Company, its employees and other pigment producers. Furthermore the bill would cause significant unnecessary cost penalties to U.S. businesses. None of this is needed in order to accomplish the bill's stated environmental goals.

We also oppose the sections in S. 2593 which would restrict the use of lead compounds in packaging. The justification given for such a restriction is that packaging containing lead is a significant part of the municipal waste stream and thereby poses a threat to the environment. However, packaging represents a small part of lead in municipal solid waste, the concentrations of lead in municipal waste leachate are in any event extremely low and even if there were a problem there are other more cost effective ways than a ban on lead in packaging of preventing lead from reaching the environment after the incineration of lead containing articles.

Effects of S. 2637

Under the bill's proposed new TSCA Section 402, the portion of the U.S. pigment color industry that uses lead will cease production and the markets for these pigments will be eliminated [Sec. 402(a)(1)(3)(6)(8)(9)]. What is the benefit? What is the cost?

To reach the stated goal of "reduced lead exposure" the provisions of this bill need to address articles with which the public comes in contact. Our pigments do not threaten the general public with any significant exposure to lead. Therefore, leaded pigment manufacture should not be addressed in this bill. As for the production of leaded pigments, the Cookson Pigments plant has made many advances in the safe handling of pigment products to reduce lead emissions to very low levels. This includes:

a) Spending $7,000,000 to control air emissions and committing another $1,000,000 to new control technology that has been developed;

b) Spending $2,300,000 on an extensive waste water treatment facility designed to meet the requirements of the local sewer control district regulations;

c) Recycling our lead containing solid waste to a secondary lead smelter;

d) Developing leaded pigment products with low dusting characteristics;

e) Developing pigments with lower bioavailability.

Markets

The major markets for leaded pigment colors are the paint and coatings, printing ink and plastics industries. These pigments are used in the paint and coatings market for their brilliant colors, excellent color stability, low solubility, opacity, and value-in-use. These colors help paint improve safety, offer identification, and decorate articles or commerce worth billions of dollars.

The printing ink industry takes advantage of the opacity, low solubility, cost, and brilliant colors of these pigments. Communication and sales appeal are important attributes of color.

The plastics market uses silica encapsulated leaded pigments for their color stability at required processing temperatures, and because of bright colors, lack of solubility, and money value. For many applications there are no substitutes that will give these bright colors at high processing temperatures.

Bioavailability

Eliminating leaded pigment colors from articles of commerce would not reduce the amount of lead exposure in any meaningful way because articles so pigmented exhibit extremely low bioavailable lead. Banning pigments containing lead will not result in a reduction in bioavailable lead in air, in the solid waste stream, in food or in water. Yet bioavailablilty is the true measure of the hazard potential of a neurotoxin.

The concept of bioavailability is recognized in EPA's Clean Water Act when controlling the leachability of various compounds including lead. European regulations rely heavily on the concept of solubility/leachability/bioavailability. The point can be illustrated by examining the difference between barium sulfate and barium chloride. Barium sulfate is approved for ingestion as an x-ray contrast medium because it has very low solubility while barium chloride is soluble and highly toxic chemical to humans. All barium compounds do not have the same health risk potential and the same is true for lead.

Substitute Products

There are no substitute yellow and orange pigments that offer the same brilliance and combination of properties (opacity, color fastness, heat stability, no bleed or migration) as chrome yellows and molyboate oranges.

Many of the so-called substitutes have unknown toxicological risk potentials as compared to the extensively evaluated lead chromates. Also, most of the hopeful substitutes are organic pigments that use imported raw materials. Some of the intermediates used in the production of these organic colors have health risks much greater than those being discussed here today. Production capacity of both the intermediates and the organic pigments themselves is quite limited and it would be many years before investment is translated into product availability.

The pigment color industry is a mature business with all conceivable prospects for making colors investigated. No new yellows or oranges of any commercial value have been brought to the market in the last 40 years and no one has much hope that new substitutes are possible.

Cost Comparisons

The cost of substitutes that can be used with sacrifices in properties are 4 to 30 times the cost of lead. This cost will be borne by the consumer. Automotive paint is $128 per gallon more expensive when leaded pigments are removed. Plastic and printing ink products have similar problems with costs. The total bill for substitution of leaded pigments with inferior colors will be over $200,000,000 per year.

What are the other costs of S. 2637? The closure of three U.S. pigments plants would mean the loss of over 500 jobs.

To close facilities that are already regulated under the OSHA lead standard and have their releases regulated under the Clean Air and Water Acts in order to achieve an insignificant reduction in lead exposure is extremely unreasonable.

We believe the current regulation of lead by federal and state agencies is doing what it was designed to do -- sharply reduce blood lead levels across the country. Furthermore, EPA is currently evaluating all remaining lead exposure routes and can make changes in current regulations, if needed.

S. 2593

Cookson Pigments believes that the provisions in Title II of S. 2593 "Lead in Packaging and Packaging Components" are unnecessary. As discussed previously in our comments on S. 2637, lead pigments are being used safely today and articles containing them can be safely disposed of in municipal solid waste (MSW) because paints, inks, and plastics containing lead have low leachability.

The lead contribution from pigment colors in packaging films and printing inks going into the MSW stream is very low. The EPA sponsored Franklin Report on lead contributions in MSW reports that pigments contribute about 1.3% of the total lead in MSW. When we consider only leaded pigment colors in packaging, this number is less than 0.1%.

The cost of substituting other colors for chrome yellows and molybdate oranges in packaging as discussed previously does not justify the removal of leaded colors to achieve such a small reduction of lead in MSW which can be controlled at the end of the incinerator process anyway.

When lead-containing products are incinerated, the heavy metals concentrate in the fly ash. But test results show that leachate from monofills and in disposal sites has very low lead levels. Furthermore, leachate from fly ash has such a high soluble salt content that it needs to be confined or recycled because the ground water will become undrinkable when the salt content becomes too high. This means that the ash must be disposed in lined monofills. Therefore it is not necessary to eliminate heavy metals such as lead from small sources such as packaging when proper methods for handling fly ash will control the potential leachage problem.

Summary

We believe regulations exist and are successfully controlling lead in the environment as evidenced by the continuing decline in average blood lead levels. Banning the use of lead in pigments will not produce any real environmental benefit and will cause considerable economic harm.

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TESTIMONY
OF
GERALD Z. DUBINSKI, SR.

ON BEHALF OF THE BATTERY COUNCIL INTERNATIONAL

BEFORE THE UNITED STATES SENATE SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT, RESEARCH AND DEVELOPMENT OF THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

June 27, 1990

Good morning. My name is Gerald Z. Dubinski. I am President of Standard Industries, Inc., a lead battery manufacturer headquartered in San Antonio, Texas and a past President of the Battery Council International. I am pleased to have the opportunity to appear today on behalf of the Battery Council International ("BCI") to express our views with regard to S.2593 and S.2637.

Mr. Chairman, BCI also had an opportunity to testify before this Subcommittee in March. At that time, our President, Mr. William Horton, described BCI's membership and program. He also described our strong support for lead battery recycling legislation. Given the limited time available to us today, I will not repeat the views Mr. Horton provided, but with the Chairman's permission would like to submit a copy of his testimony for the record.

That having been said, and simply to orient you, allow me to note that BCI represents approximately 99% of the United States lead battery manufacturing capacity and 92% of its recycling, or secondary smelting, capacity. We have been very active on both the state and federal level in encouraging administrative and legislative actions that will encourage the recycling of lead batteries.

As you know, Section 406 of S.2637 focuses directly on the recycling of lead batteries. While we believe that section could benefit from several drafting changes, to which I will refer shortly, we also believe that the straightforward, self-implementing approach it presents is a sound and appropriate one. We therefore strongly endorse the inclusion of a provision similar to Section 406 in any legislation that this Subcommittee reports.

Before turning to the improvements we believe should be made to Section 406, allow me first to express our view on the alternative battery recycling provision set forth as Section 104 of S.2593. That section would direct EPA to adopt regulations to encourage recycling, and require EPA to impose a fee on every lead battery sold in the United States.

We believe both of these proposals are misguided. The states already are moving aggressively to implement battery recycling programs, and do not appear to need guidance or funding from EPA. In the last two years, for example, two dozen states have adopted programs -- all but a handful of which are substantively similar to Section 406 of S.2637 -- and another dozen or so are well on the way to doing so. The states with mandatory battery recycling laws, or actively considering them, for the most part are urban and represent almost 85% of the nation's population. Under these circumstances, we believe that an EPA rulemaking effort is wholly unnecessary. Indeed, initiation of such an effort might delay implementation of environmentally sound programs by creating an extended period of uncertainty. Furthermore, given the rapid pace of state recycling initiatives, there does not appear to be any need for a federal grant program.

We also believe there is no rational basis for taxing batteries to create a fund to deal with historic lead paint problems, as also is proposed by S.2593. Batteries manufactured and sold today, and for that matter, historic lead batteries, have absolutely no relationship to lead paint or the production of pigments for that paint. There is no reason whatsoever to single out manufacturers or consumers of batteries to fund such efforts. Indeed, the lead used in batteries is a different type from that once used in house paint. Thus, while BCI supports federal activity to address concerns arising from deteriorating residential paint, batteries and battery manufacturers are not in any sense responsible parties. Rather, at this stage, we believe that funding to deal with historic lead paint problems should be through general revenues.

Allow me now to return to Section 406 of S.2637. As noted above, BCI supports this approach, but urges several improvements to the text of the current draft of the bill.

Our first suggestions go to labeling requirements. As background, I should be clear that BCI supports labeling of lead batteries to indicate that they contain lead and are recyclable. Indeed, several months ago our Board adopted a industry standard to this effect, and we expect that all lead batteries sold in the United States soon will carry the international recycling symbol, with the additional words "LEAD/RETURN/RECYCLE." Some manufacturers already have implemented this program. Moreover, BCI and several of its members have initiated public awareness campaigns to inform the public that batteries can be returned to retailers and thereafter, are recycled.

However, Subsection 406(j) of S.2637 would require two additional and different statements. We do not believe that these are necessary, nor would they be effective. As you are probably aware, lead batteries already carry a number of warnings, and we believe that the sentences set forth in the bill either would be lost among them or would dilute the effectiveness of these other important safety warnings. We believe an approach that more effectively meets the Subcommittee's objectives would be to require that lead batteries carry the international recycling symbol and the wording BCI already has adopted, combined with Subsection 406(h)'s requirement that retailers advertise their recycling obligation and the federal prohibition on battery disposal through point of sale placarding.

Subsection 406(j) also allows only six months for manufacturers to begin putting newly required labeling information on their batteries. To the extent that the Subcommittee concludes that any additional labeling is required, we do not believe that the six months provides an adequate implementation lead time. Our experience is that it takes a considerable period to economically retool and fully label all batteries. We thus would encourage the Subcommittee, to the extent any additional labeling is considered necessary, to allow at least 24 months before it is required on all batteries.

As a final point on labeling, I would note our views as to Section 404. Generally, Section 404 requires the labeling of products that contain lead with the percentage of lead they contain. Perhaps this would serve some useful purpose as to products not generally understood to contain lead. However, that rationale hardly applies to batteries, which already are being labeled as containing lead. Moreover, the precise relative lead content of batteries varies widely. Imposing this requirement on batteries therefore would provide no useful information to consumers, but would be quite burdensome on manufacturers. We suggest that the Subcommittee address all labeling requirements in Section 406 and that, to the extent a provision such as Section 404 remains in any final bill, it be revised to specify that it does not apply to lead batteries.

Supplementing, but also going beyond, our concern with S.2637's labeling provisions are our concerns with inconsistent state, county or local requirements. As you are aware, the distribution of batteries occurs on a regional and national, not state or local, basis. Thus, even minor variations in labeling or other requirements among the states can cause major difficulties for battery manufacturers, distributors, wholesalers and recyclers. We thus urge the inclusion in any bill reported by the Subcommittee of a statement precluding any state, county or municipal authority from adopting requirements different than those required by federal law.

Along the same lines, we urge the deletion of subsection 406(1), which would allow states to adopt deposit schemes. We do not believe that such schemes are necessary to encourage battery recycling, and believe it would be far more appropriate for the federal government to assure the adoption of a uniform program throughout the nation than to sanction local and state variations.

Another area of our concern as to Section 406 is its reference, at several points, to the locations where spent batteries may be taken for further management. Two phrases repeatedly used to identify where spent batteries may be taken are to a "secondary lead smelter permitted by a State or the Administrator under the Solid Waste Disposal Act" and to a "collection or recycling facility permitted by a State or by the Administrator." We suggest that both phrases be revised by removing specific reference to permitting requirements. As drafted, the person bringing the batteries to the facility would have the burden of assuring that the facility had all of the requisite permits and that theses permits were current and in effect. This burden could be a difficult to satisfy and would subject the person bringing batteries to a facility to penalties if that facility did not have all of the required permits or the permits expired or otherwise were not current. This could discourage or complicate recycling.

In addition, as currently drafted, the language suggests that new or different permits may be required. Making the changes suggested would clarify that Section 406 itself does not impose any new or different regulatory requirements not existing already under governmental authorities other than TSCA. The failure to specifically reference these other authorities in TSCA will in no way diminish whatever obligations they create.

Our final comment on Section 406 goes to a minor inconsistency between the obligations it would impose as to spent battery handling by wholesalers and manufacturers, on the one hand, and retailers, on the other. Specifically, Subsection 406(f) requires that battery retailers take back from consumers lead batteries of the same type sold by the retailer and in approximately the same quantity as the number of batteries sold. Subsections (g) and (h) pick up the first of these requirements --

that is, that wholesalers and manufacturers accept batteries of the same type they sell -- but not the quantity limitation.

One of the reasons the battery reclamation chain now works well is because battery suppliers are able to take back used batteries on the same vehicles with which they deliver new batteries. This allows them to match their recycling and distribution costs and responsibilities. We thus believe it is important that the quantity restrictions be included both as to wholesalers and manufacturers, as well as retailers.

There are several other provisions of S.2637 that could directly or indirectly impact battery manufacturers and recyclers. A number of these are being addressed today by Mr. Zelms, with whose views we generally are in agreement. We offer additional comment on several particular provisions, however.

First, we believe the emissions reporting that would be imposed on secondary smelters and battery manufacturers by Section 403(c) are largely unnecessary. Much of the information this section requests already is reported by these facilities under various programs, and we have serious doubts as to the need for these additional reports. To the extent the Subcommittee concludes that they are necessary, however, we urge that EPA be expressly directed not to require additional reporting of information already being collected and filed under SARA Title III, the Clean Air Act, or other programs.

We also are troubled by Section 405, dealing with notices for new lead-containing products. We urge that the Committee exclude lead batteries from that section. As presently drafted, the section is tantamount to a ban on new lead products. It reaches this result by prohibiting the production of new products unless EPA affirmatively approves them, and does so on the basis of some very limited and, we believe, inappropriate criteria. Applying such provisions to lead batteries could discourage the development of new, more efficient batteries, such as those necessary to power electric vehicles. We do not understand this to be the Subcommittee's intent and urge express clarification in the text of any provision that may ultimately be adopted, that it would not apply to lead batteries.

We have a similar view as to Section 402(d), which would authorize EPA to ban or require the substantial modification of existing products under certain circumstances. It is our understanding that it is the Committee's intention through this provision to deal with lead uses of which it may now not be aware, and which are not essential. Yet virtually every witness that has appeared before this Committee has recognized that lead batteries indeed are essential. Moreover, battery manufacturers long have had programs underway to reduce the lead content of their products, and can be expected to maintain these efforts without the pressure of potential EPA inquiries.

We thus urge an express exclusion of lead batteries from this or any analogous provision included in a final bill. In the absence of such an exclusion, we believe it vital that the phrase "comparable substitute product" be defined so as to minimize extensive EPA inquiries into speculative or hypothetical alternatives to existing uses.

Finally, as I noted previously, there are several other provisions of these bills as to which we believe improvements could be made. Most of these are being addressed in other testimony being presented to this Subcommittee. We look forward to working constructively with you and your staffs on these issues as well as those upon which we have specifically commented upon today.

We appreciate the opportunity to appear today before the Subcommittee, and of course would be pleased to respond to any questions you may have.

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STATEMENT OF J. WILLIAM HORTON VICE PRESIDENT OF JOHNSON CONTROLS, INC. AND GENERAL MANAGER OF JOHNSON CONTROLS BATTERY GROUP AND PRESIDENT OF THE BATTERY COUNCIL INTERNATIONAL BEFORE THE SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT, RESEARCH AND DEVELOPMENT OF THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

MARCH 8, 1990

Good morning, Mr. Chairman and members of the Subcommittee. I am William Horton, Vice President of Johnson Controls Incorporated and General Manager of Johnson Controls Battery Group. Johnson Controls is the nation's largest manufacturer of automotive lead batteries. I also serve as President of the Battery Council International ("BCI"), on whose behalf I appear today. As you heard from other witnesses testifying today, lead batteries account for approximately 78 percent of this nation's use of lead. At least 90 percent of these lead batteries are recycled. Thus, the majority of lead today ends up being recycled for reuse and not in the municipal waste stream or the ambient environment. Accordingly, it is our view that lead battery recycling is a significant and important means of avoiding any potential lead exposures.

We are pleased to have the opportunity to discuss with you today the historic success of our industry in recycling batteries and our continuing efforts to promote and sustain very high battery recycling rates.

Allow me first, however, to provide some background on BCI. We have over 250 members worldwide, each involved in some phase of lead battery manufacturing, supply, distribution, or recycling. Domestically, our membership accounts for approximately 99 percent of the nation's lead battery manufacturing capacity, and approximately 92 percent of its battery recycling capacity. Our members account for 86 manufacturing plants located throughout the country, such as Johnson Controls' battery manufacturing plant in Bennington, Vermont. Our members also include battery retailers in every state such as Exide's automotive sales and service stations in Reno and Las Vegas, Nevada, and Wallingford, Connecticut, as well as the battery distribution centers located in each region of the country.

The lead batteries we manufacture and recycle are used for starting, lighting and ignition systems in automobiles, other vehicles and in marine systems; to power computers and household tools; and in a variety of industrial applications. In 1989, over

87 million lead batteries were sold in the United States. And lead battery usage is growing, because of consumer demand for electrical devices, the fundamental relative efficiency of this power source and, we believe, the recyclability of our product.

Few people realize that lead batteries and their components are almost completely recyclable, and even without legislative encouragement, they are being recycled! Precise recycling numbers are difficult to generate, for a variety of reasons. The USEPA stated in two 1989 reports ("The Solid Waste Dilemma: An Agenda for Action" and "The Sources of Lead in Cadmium and Municipal Waste Treatment, 1970 to 2000") that 80 percent of all spent automotive lead batteries currently are recycled. However, in a February, 1990, article in Resource Recycling magazine, the Bureau of Mines is quoted as stating that the battery recycling rate for 1988 and 1989 is in excess of 90 percent. Based on the experience of our members, BCI agrees that the battery recycling rate likely exceeds 90 percent.

Whatever the precise number, however, it is obvious that the recycling rate is high. Indeed, even at 80 percent, the rate of lead battery recycling is 1½ times greater than aluminum cans and 5 times greater than glass bottles.

What actually happens in contemporary battery recycling? Allow me to briefly outline the process.

First, after their three-to-five year useful life has ended, spent batteries are returned by consumers to retailers or recyclers. The spent batteries are then picked up by wholesalers or others and taken to secondary lead smelters.

Some secondary smelters are owned by battery manufacturers, while others are independent. While there are variations from facility to facility, the basic reclamation process at each is quite similar. In the modern secondary smelter, a continuous process breaks up the battery, shreds its plastic case, separates and treats the acids, and smelts the remaining plates and oxides to produce reusable lead and lead alloys. The lead is then shipped for battery manufacture and other uses, while the plastic is shipped for reprocessing into molding resin, and is used in battery cases, covers, vent caps and other products. The acid is either reused or neutralized. All of these activities are strictly regulated under various environmental and occupational health statutes, and are performed so as to minimize any adverse impact on workers and the environment.

In short, a sophisticated and voluntary battery recycling infrastructure exists today, and can be expected to grow. Indeed, major capital expansion programs recently have been announced by several companies that will assure continued recycling capacity into the next century.

Nonetheless, some modest percentage of batteries now or in the future may escape recycling. BCI thus has committed its resources to advancing efforts to close this gap. Allow me to cite three specific examples of our efforts.

First, BCI is actively promoting both state and federal legislation that will encourage the recycling of lead batteries and impose the least cost on consumers, retailers, distributors, and manufacturers. Our experience has shown that if retailers readily take back used batteries, and consumers are aware of their take back opportunities, consumers will voluntarily trade-in their used batteries. BCI believes, therefore, that to the extent legislation is necessary to promote recycling, such legislation should emphasize increasing consumer trade-in opportunities.

With this in mind, BCI has advanced enactment of a model state battery recycling bill that would prohibit the incineration or land disposal of batteries, require retailers to accept used batteries as returns, require point-of-sale educational signs stating that fact, and require wholesalers and manufacturers to retrieve spent batteries from retailers and take them to secondary smelters for recycling. Legislation based on BCI's model has been adopted in thirteen states to date, including California, Florida, Hawaii, Illinois, Louisiana, Maine, Minnesota, North Carolina, Oregon, Pennsylvania, Rhode Island, Washington, and Wyoming, and is under active consideration in approximately twenty other states.

As a practical matter, however, BCI believes federal legislation to address this issue would be much more appropriate than continued piecemeal adoption of state programs. Battery manufacture and distribution is a classic example of interstate commerce. Lead batteries are produced and distributed on a regional basis, and are not manufactured for sale in a specific state. When different states impose different requirements -- even seemingly innocuous differences, such as product labelling obligations -- significant and unnecessary costs are imposed on the battery manufacturing industry and, ultimately, on consumers. This is a classic interference with interstate commerce, which we believe the Congress should act to eliminate.

For this reason, BCI has urged the inclusion of a provision analogous to our model state bill in the RCRA Reauthorization and Pollution Prevention bills currently under consideration. We are pleased that such language has been included in the bills pending both in the Senate under sponsorship of yourself and Senators Chafee, Baucus, Lieberman, and others, and in the House of Representatives under the principal sponsorship of Congressman Luken.

A second example of our activities to promote recycling is wholly independent of our legislative efforts. To encourage recycling, BCI's Board of Directors recently adopted a resolution calling for the labeling of all lead batteries as recyclable.

BCI has gone so far as to develop a specific label based on the international recycling symbol, which also includes the words LEAD, RETURN, RECYCLE. We fully expect this label to be adopted nationwide by mid-1991. Uniform labeling will enable consumers to readily identify lead batteries and remind them that, when those batteries have served their useful life, they should be returned to retailers for recycling. As we noted earlier, it is our experience that when consumers are informed that batteries are recyclable, they will recycle these batteries.

A third example of our activities involves working with the administrative agencies, principally EPA. BCI is actively working with EPA to encourage adoption of programs that will further battery recycling, again without unnecessary cost or burden. For example, BCI recently filed comments on EPA's proposed performance standards for new and existing municipal waste combustors, urging the Agency to go further than its proposal by requiring recycling. In that proposal, EPA would require municipal incinerator operators to separate 25 percent of the solid waste stream, including lead batteries, with no additional requirement that these separated materials be recycled. BCI urged in our comments that EPA specifically mandate that lead batteries be both separated from the incinerator input stream and directed to secondary lead smelters for recycling.

We also have sought to open lines of communication at EPA as the Agency works to develop its overall lead strategy.

Mr. Chairman, the Subcommittee has today received a considerable amount of testimony about lead and its potential health affects. BCI fully recognizes the legitimacy of the community concerns with these matters. We also believe, however, that any fair approach to this problem will recognize that batteries constitute an extraordinarily beneficial and essential product and that any concerns that may exist about lead used in batteries can be overcome through an active, environmentally sound, battery recycling program.

Mr. Chairman and members of the Subcommittee, we thank you for the opportunity to appear here today. I will be pleased to answer any questions you may have.

AMERICAN ELECTRONICS ASSOCIATION

On S. 2637

Before the Subcommittee on Toxic Substances,
Environmental Oversight, Research and Development

June 27, 1990

Mr. Chairman, I am Mark Stanga, Environmental Affairs Counsel for Litton Industries, Inc. I serve as cochair of the Lead Task Force of the American Electronics Association (AEA), and my statement today is on behalf of the AEA, the Computer and Business Equipment Manufacturers Association, and the Electronic Industries Association. These associations represent more than 3500 manufacturers of electronics and electrical equipment nationwide with a median size of 60 to 70 employees.

We share your desire to minimize the amount of lead released into the environment. Our concern, however, is that some of the provisions of S. 2637 would regulate essential uses of lead in the electronics and electrical equipment industry, probably in ways that you did not intend.

Legislative efforts should be focused on identified sources of risk. The bill as written fails to distinguish between major and minor sources of exposure, treating them all equally regardless of the net impact. Major sources pose risks because of direct consumer exposure or the disposal and potential mismanagement of large quantities. Refocusing the bills on high priority sources will provide ample protection of public health and the environment, while avoiding disruption of sources of minimal concern where substitutes are difficult or impossible to obtain.

The electronics and electrical equipment industry uses lead in many applications. Nevertheless, these applications result in limited consumer or environmental exposure. The primary uses are in solder (in electronics and light bulbs), as a heat stabilizer in polyvinyl chloride (PVC) cable jacketing and insulation, in television and cathode ray tube glass and some specialized lighting applications, and in ceramic applications. While I will describe the major uses, and the implications of trying to eliminate lead from them, we want to make some general observations about the wisdom of regulating lead uses in the electronics and electrical equipment industry.

o There is virtually no consumer exposure from lead in electronics uses. Any potential concerns would be from environmental exposure through disposal of products containing these materials in municipal or industrial solid waste streams.

o For most electronics and electrical equipment industry uses of lead, the amount of lead that is disposed of is small, and is generally bound in alloys or other stable materials, so that under reasonable scenarios for the management of these wastes, only very limited amounts are likely to be released into the environment. Generally speaking, the lead in most of these applications is not bioavailable.

o Lead is essential for many of these uses, and substitutes have been difficult if not impossible to develop, even with substantial research. In fact, some uses require lead to protect against other serious health effects (such as x-ray shielding). The existence of military specifications requiring the use of lead-containing materials is another complication to the development of substitutes.

o For most of these materials, where the concern is the potential release of lead through waste incineration or leaching in landfills, regulating product composition is not the best way to keep lead out of the environment. It may make more sense to explore recycling of appropriate materials, using source separation or other techniques to keep them out of incinerators or landfills. Since the risk of leaching for most of these lead-containing materials involves exposure to acids such as might develop in a mixed refuse landfill, it may also be appropriate for certain wastes containing significant percentages of lead to be isolated from municipal waste in landfills.

o Regulation of imports of lead or lead-containing products is not a realistic solution to the potential dramatic effect of this proposed legislation on the competitiveness of the U.S. electronics and electrical equipment industry. Importation of these products involves hundreds of thousands of shipments of millions of products every year. There is simply no way to effectively enforce these restrictions. In the absence of effective enforcement, these restrictions provide no competitiveness protection.

Solder

Of the 1,200,000 tons of lead consumed in the United States each year, only about 8,000 tons (or about 0.66%) are used for solder in the electronics industry. The amount of lead released to the environment from solder in consumer and business electronics and light bulbs is minimal, according to both EPA and industry estimates.

The industry is continuing its substantial research efforts into the possibilities of substitutes for solder containing lead. There are a few specialized applications for which substitutes have been identified, but the metallurgical properties of tin-lead solder are particularly well-suited to electronics applications. Most potential substitutes involve other heavy metals with their own health risks. Several materials suggested as possible substitutes have lower melting temperatures than lead-containing solders, making them unfit for electronics applications, where operating temperatures are often elevated. Other materials, with higher melting temperatures, risk component damage in application.

Lead-containing solders have other desirable properties, including greater ductility and the ability to withstanding rapid changes in thermal cycling, and greater durability in applications where fatigue factors are critical.

Today's solder technology in the electronics industry is the result of several decades of research and development. Compatibility with the materials to which the solder is applied is also a limiting factor. Tin-lead solder tends to be more compatible with the materials used in electronics applications. This raises an important point about the difficulties of developing workable substitutes: All the soldering tools and manufacturing processes in the electronics industry are designed for tin-lead solder. If substitutes were to be used, those tools and processes would have to be redesigned and replaced. Beyond that, the electronics products themselves are designed with the metallurgical and electrical properties of tin-lead solder in mind. Substitution for lead-containing solders would require redesign of the fundamental electronic circuitry and other electronic products.

PVC Stabilizer

S. 2637 would eliminate plastic additives containing lead. A key use for lead in the electronics and electrical equipment industry is as a heat stabilizer in polyvinyl chloride (PVC) cable jacketing and insulation. Again, this is not a use which results in consumer exposure to lead. The amount of lead in stabilizers for PVC which is disposed of is relatively low. The products involved are power cables, telephone cables, and cord/connector applications. It should be possible to reduce even further the amount of these materials being disposed of improperly, without regulation of the use of lead as a heat stabilizer.

The majority of lead-based heat stabilizers have been replaced in applications where substitution is technically feasible. There are no products available that can replace lead-based stabilizers for power wiring and telephone cable. Lead provides essential qualities such as insulation, flexibility, weathering, and humidity resistance. Lead-based heat stabilizers in PVC insulation and jacketing are plastic additives that should not be banned, and for which adequate substitutes are not likely to be developed.

Glass

Section 402 of S. 2637 directly restricts the use of frit which is an essential component of glass products used in the electronics industry. Although S. 2637 does not directly restrict the lead content of other electronic glass products, the provisions of sections 404 and 405 could require labeling and restrict the introduction of new products containing more than 0.1 percent lead. There are several important glass products in this industry that might be affected by these provisions.

Lead is an indispensible ingredient in the manufacture of the glass used to house television picture tubes. Glass panels, funnels, necks, and the frit used to connect panels and funnels all contain lead in the form of lead oxide, not metallic lead. Use of lead enables television glass to comply with laws and regulations regarding radiation protection. Lead oxide also imparts other properties to glass which make it essential for use in television picture tube glass including extending the working range and providing needed electrical resistivity.

The television glass industry utilizes lead in strict accordance with applicable State, local, and Federal laws including, but not limited to, those administered by the EPA, DOT, and OSHA. By compliance with these requirements the industry strives to assure the complete protection of workers, consumers, and the environment.

Again, this is an area where substitutes are either not available or not very promising, despite research. Heavy metal substitutes present their own hazards. In disposal the lead in television tubes is fully encapsulated and presents very little risk of exposure because it is unlikely to become bioavailable.

Lead is also used in the base of incandescent bulbs and fluorescent tubing holding the filament wires. This is due to the excellent electrical resistivity and insulation properties of lead. The optical properties of lead cause it to be used for certain lamps, as well. While these are very important uses to our industry, the total amount of lead from light bulb glass that is disposed of is miniscule.

Difficulties with the substitutes for these uses includes processing problems and limited availability of materials. In one interesting example, the use of leaded glass serves both an energy efficiency and a health protection purpose. High Intensity Discharge lighting lamps provide a dramatic energy savings over conventional lamps. The leaded glass is necessary to assure protection against ultraviolet radiation, which could otherwise be a concern with such lamps.

This typifies the problem of finding substitutes for lead in the electronics and electrical equipment industry. Every use is application-specific, and there are thousands of uses. Any substitute has to be application-specific, as well. It must match the properties offered by lead, not just in a general way, but for the specific use being considered. The consequences of change from lead to another material will differ substantially, in each application.

Conclusion

The uses of lead in the electronics and electrical equipment industry are extremely complex. The indiscriminate bans on lead-containing products in S. 2637 are not sufficiently refined or appropriate to address those critical uses. Our industry has developed considerable expertise in the use of lead in solder, glass, insulation, and other applications. We do not use lead out of ignorance, or primarily because of cost considerations or out of convenience. Our uses of lead are based on specific properties needed in critical uses. It would be devastating to the U.S. electronics industry to arbitrarily eliminate lead from these remaining essential uses, particularly when industry in all other countries would be able to continue current manufacturing practices.

We appreciate the opportunity to testify today. We want to express our strong interest in working with you and your staff as you develop this legislation. We are anxious to share the technical knowledge and perspective that we have on these uses of lead. We have begun a serious examination of the issues raised by this legislation and its relationship to our industry. Today's testimony represents only the preliminary phases of that effort. At the appropriate time, either as a part of this hearing record or as assistance to the committee staff, we will submit detailed suggestions for modifications to S. 2637 and other pending lead exposure reduction legislation. In addition, we will be happy to provide any information you require.

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TESTIMONY ON
LEAD EXPOSURE REDUCTION ACT OF 1990
AND
LEAD BAN ACT OF 1990

BEFORE THE

SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL
OVERSIGHT, RESEARCH AND DEVELOPMENT

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
U.S. SENATE

JUNE 27, 1990

Presented by Dennis R. Heldman, Ph.D.
Executive Vice President
Scientific Affairs

Testimony on
Lead Exposure Reduction Act of 1990
and
Lead Ban Act of 1990
Before the
Subcommittee on Toxic Substances, Environmental Oversight, Research Development
Committee on Environment and Public Works
U. S. Senate
June 27, 1990

The National Food Processors Association (NFPA) is a scientifically and technically based trade association that represents nearly 600 companies including most of the major food processing companies in the U.S. About 450 of our member companies pack processed-prepared foods (formulated and dairy) including canned, frozen, refrigerated, aseptic, dehydrated, pickled, and other preserved food items. Other members manufacture packaging and processing equipment, or provide supplies and services to the food processing industry.

During the past 15 years, the food industry has significantly reduced the potential for human exposure to lead through food products. This achievement has resulted from a voluntary cooperative effort between the NFPA and the Can Manufacturers Institute (CMI). The scope of this effort encompassed the development of new can manufacturing technologies for metal containers including development of the two-piece container (with no side seam), the welded side seam three-piece container and the tin soldered three-piece container. Their development required the commitment of significant resources on the part of the container manufacturers. Conversion to full scale production of two-piece and welded containers required replacement of existing can manufacturing lines with new equipment and a commitment by the food industry to purchase the new containers as they become available. Economics dictated that new containers be sized to fit existing can filling and closure equipment to reduce conversion costs for the food processing industry and thereby encourage more rapid utilization of the technology. Changes in the configuration of some of the new cans required extensive testing to assure the continued safety of thermally processed foods.

The dramatic results of this national effort are illustrated by an 86% reduction in the average level of lead in canned food products and an overall reduction in the use of lead-soldered cans from 90.3% of total domestic production in 1979 to just 3.07% in the first quarter of 1990. These statistics clearly illustrate the willingness and the ability of the industry to respond to concerns about the safety of the food supply. The food industry is now prepared to take the next step and voluntarily eliminate the manufacture and use of lead-soldered cans within the United States. Accordingly, NFPA and CMI are recommending that the food processing industry cease the production, packing, and distribution of foods in lead-soldered containers. This would include both domestic production and canned foods imported by our members. A copy of our joint position paper is included as Attachment A to this statement.

The NFPA and the CMI are currently cooperating with the Food and Drug Administration to assemble additional information on human exposure to lead through the food supply. This survey will be completed within the next six to eight weeks and should supply the industry and FDA with better insight into the additional steps required to reduce or minimize dietary exposure from canned foods. Response to the survey has been good; thus far we have a 42% return rate. However, in order to provide a complete report, we plan to follow up with those companies that have not responded. Of the 185 responses thus far; 9 processor companies indicated a limited use of lead-soldered containers, and 5 of the 9 are using lead-soldered cans only for imported products. Those companies note that the imported products are being sourced whenever possible in non-lead soldered containers but these types of cans are not always available.

It must be recognized that the food industry is approaching a practical lower limit in reduction of dietary lead exposure through foods. Lead levels in canned foods are approaching background in the environment. In addition, lead levels in most products are below limit of quantitation for existing analytical methodology. Although steps proposed to eliminate all lead-soldered cans for food use is achievable, it is important to recognize that significant additional reductions in lead exposure due to foods is unlikely for the reasons mentioned above.

NFPA analysis of the proposed legislation (S. 2593 and S. 2637) as it relates to canned food products has been completed. In general, the proposed legislation as it relates to lead-soldered containers can be supported by the food industry with minor qualifications. The six-month effective date in S. 2637 after enactment of legislation is insufficient time for any adjustments (such as conversion to tin solder which requires higher melting temperatures and modification to the can seaming process) that might be required. A time period of 12 months as provided for in S. 2593 would be acceptable.

One of the more difficult provisions of the legislation is the banning of imported product in lead-soldered cans. Although this is a worthy goal, the legislation does not address the manner in which this type of regulation could be enforced nor the regulatory agency responsible for enforcement. It would be impossible to adequately test all canned product entering the U.S. without a significant budget increase for the responsible regulatory agency. We believe such a costly testing program would, at best, achieve only limited improvement in food safety.

The most serious deficiency in the proposed legislation is the agency assigned with regulatory authority for food containers. The Federal Food, Drug, and Cosmetic Act clearly establishes FDA jurisdiction over the regulation of food contact surfaces. While it may be appropriate for EPA to be granted responsibility for regulation of lead in non-food items, the legislation should provide that the Food and Drug Administration maintain its historical and congressionally mandated regulatory jurisdiction over food contact materials including lead in canned foods.

We hope that you will give serious consideration to these comments from the food processing industry. The food processing industry, along with the can manufacturing industry, has made significant progress in reducing human exposure to lead through food products and is prepared to take additional steps in concert with the FDA as are required to protect human health.

Attachment

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Attachment A

PROPOSED RECOMMENDATION
LEAD SIDE SEAM SOLDERED CONTAINERS

The Federal Food and Drug Administration (FDA) on August 31, 1979 solicited in an Advance Notice, data related to the dietary intake of lead from food. It stated:

> "The long range goal of FDA in conjunction with other Federal regulatory agencies is to reduce lead intake from all sources ... air, water, and food ... to less than 100 micrograms per day (mcg./day) for children one to five years old."
>
> The notice stated that the ultimate objective was "to reduce consumer lead exposure to the lowest level that can be practically obtained".
>
> "The initial goal of this effort will be to reduce, by at least 50% within the next five years, the contribution of lead intake from lead-soldered cans."

In response to this request, the National Food Processors Association (NFPA) in cooperation with the Can Manufacturers Institute (CMI) provided FDA in 1980, a series of comprehensive reports detailing the data available as of the request date. These data were based upon previous cooperative research by the canning and can manufacturing industries with the FDA, designed to develop methods to reduce adventitious lead from lead-soldered metal containers.

Since 1980, the NFPA and CMI have continued to work with the FDA to reduce lead levels in the food supply. Members of a joint committee of NFPA and CMI have carried out chemical analyses and extensive market surveys to determine lead levels in processed foods, have conducted training seminars on Good Manufacturing Practices in can making and processing operations to minimize lead and have met with FDA officials to review progress.

Since 1980, six retail market surveys have been conducted. In 1980, the survey showed that lead levels in canned foods averaged about 0.31 parts per million (ppm). In the most recent 1987-88 survey, the average lead level in canned foods dropped to .042 ppm. This is a reduction of 86.5%.

The percentage of food can shipment in lead-soldered containers has decreased from 90.3% in 1979 to 3.07% in the first quarter of 1990. This reduction has been accomplished by using welded side seam containers, tin soldered containers, protective coatings and sleeving to eliminate food contact with the side seam, two-piece containers, and plastic containers.

With additional knowledge on the effect of lead in children developed since 1979, the Provisional Tolerable Intake for lead in children is now 6-18 mcg./day and could go lower. Thus, it is imperative that all controllable sources of added lead be removed from the diet.

Despite the excellent effort to date, the industry must seek means for further reduction of container contributed lead. Thus, the NFPA and CMI recommend that the food processing industry cease the production, packing and distribution of foods in lead-soldered containers.

6/90

TESTIMONY OF
WILLIAM H. SIMPSON
PRESIDENT OF THE PFALTZGRAFF COMPANY
AND
CHAIRMAN OF THE COALITION FOR SAFE CERAMICWARE
ON
S. 2593 AND S. 2637

Good afternoon, Mr. Chairman and members of the Committee. My name is William H. Simpson. I am appearing today as President of The Pfaltzgraff Company, one of the largest U.S. manufacturers of ceramic tableware, and as Chairman of the Coalition for Safe Ceramicware, an ad hoc association of the world's leading ceramicware manufacturers. I greatly appreciate the opportunity to appear here today on behalf of my company and our industry.

The two bills being considered by the Committee have as their common goal reducing the amount of lead contamination in the environment. Their approaches to this issue are very different, however. S. 2593 -- the so-called "Bradley bill" -- is, on balance, a reasoned approach to the problem that calls for action after thorough study of the very complex issues raised by the use of lead in a host of industrial applications, including ceramics. With some minor reservations, the Coalition supports this initiative. On the other hand, the Coalition strongly opposes S. 2637 -- the "Reid bill" -- because it, in effect, by totally bans the use of lead in ceramicware products, despite there being no evidence that the presence of lead in ceramicware, in and of itself, presents a danger to the public health or the environment.

It is our strong view that the public health would be better protected if government efforts were directed at effective enforcement of existing lead release limitations. Those few incidents linking ceramic tableware with lead poisoning have consistently involved products that were in gross violation of current federal standards.

The key to avoiding repeats of such incidents is not to focus energy on forcing reputable commercial manufacturers to produce to even lower release limits; the key is to see that compliance with existing limits is improved through effective government enforcement.

DESCRIPTION OF THE COALITION FOR SAFE CERAMICWARE

Concern over the impact of lead on human health was, quite literally, the moving force behind the creation of the Coalition for Safe Ceramicware. The Coalition was organized about a year ago in order to address the U.S. Food and Drug Administration's June 1989 proposal to reexamine the federal action levels -- that is, the maximum permissible release levels -- for leachable lead in ceramicware products used with food. The members of the Coalition include virtually all of the finest names in ceramicware -- Lenox, Corning, Wedgwood, Royal Doulton, Noritake, Villeroy & Boch, and of course, my own company. All of us are highly reputable and responsible companies, and we share an interest in insuring that the public continues to have confidence in the safety of our products.

In November 1989, the Coalition filed a substantial brief with FDA addressing the agency's proposed reduction in action levels for leachable lead in ceramic food-service pitchers. We spent approximately half a million dollars on that effort, and conducted the most comprehensive quantitative risk analysis for lead in ceramicware and the most extensive product testing ever performed by either industry or the government. As a result of our work, we concluded that ceramicware pitchers with a leachable lead level of up to 0.5 parts per million were safe, even making a host of "worst case" assumptions. We recommended that FDA reduce the lead action level to 0.5 parts per million for ceramic pitchers -- an 80 percent reduction from the current level -- but also pointed out that most commercially-produced ceramicware today has leachable lead levels well below this new threshold. In other words, stricter release limits for pitchers are appropriate, but neither the government nor the public has any reason to be concerned about the safety of commercially-manufactured ceramicware.

The Coalition is now in the midst of additional work aimed at providing FDA with data on a broad range of issues relating to the safety of ceramicware products, including the appropriateness of reducing the federal action levels for leachable lead in ceramicware products other than pitchers. We expect to spend at least another half a million dollars in this effort. We will, once again, be undertaking a quantitative risk assessment, and will also be gathering information on how consumers actually use ceramicware products. At the end of the day, we should have hard data that will allow FDA to make a reasoned judgment regarding the need to reduce the action levels for leachable lead in the full range of ceramic dinnerware and accessories.

Very recently, the Coalition has also begun working with the Environmental Protection Agency's "lead workgroup" to assist the agency in understanding the uses of lead in the ceramicware industry, the risks such use poses for workers, consumers and the environment, and the availability of commercial substitutes. The agency intends to publish an advance notice of proposed rulemaking in the near future in which it will solicit comment on the appropriateness of banning or limiting the production of lead pursuant to section 6 of the Toxic Substances Control Act ("TSCA"). The Coalition intends to cooperate fully with EPA, and believes that the agency has ample authority, under the existing provisions of the TSCA, to protect the public health and environment from lead exposure.

THE COALITION SUPPORTS THE BRADLEY BILL

Section 107 of S. 2593, as currently framed, requires the Environmental Protection Agency, within 12 months of the date of enactment, to "establish such standards and testing procedures with respect to lead in ceramic ware as may be necessary to protect public health." A report to Congress on the standards and testing procedures developed must be filed with Congress within three months thereafter.

From Senator Bradley's remarks upon introducing S. 2593, it is clear that the ceramicware provisions in section 107 of the bill focus on the risk of lead contamination of food that is stored, prepared or consumed in ceramicware products containing leaded glazes. In his introductory remarks, for example, Senator Bradley highlighted the possibility of food contamination, stating that "You can have a pitcher that meets existing standards, yet when left holding orange juice overnight can give a kid in one 8 oz. glass 625 micrograms of lead, or 6 times what we have said is the maximum allowable daily intake." 136 Cong. Rec. S 5831 (May 8, 1990).

It bears noting, however, that this statement exaggerates the inadequacy of the current federal action level applicable to ceramic pitchers, because it is based on the unrealistic assumption that orange juice has as much leaching potential as the powerful four percent acetic acid that is the designated FDA testing solution. The Coalition's testing has thus far established that the FDA acetic acid test significantly overpredicts the amount of lead leaching into orange juice. Hence, even if a pitcher were to have a release level near the current action level of 2.5 ppm as measured by the FDA acetic acid test, orange juice stored in that pitcher overnight would not expose the consumer to the large amount of lead referenced by Senator Bradley. In any event, it bears noting that the Coalition has recommended that FDA reduce the action level for pitchers by 80 percent -- to 0.5 ppm -- in order to increase the margin of safety.

Conceptually, the Coalition for Safe Ceramicware supports the Bradley bill's call for regulatory action aimed at revising "standards and testing procedures" in order to further protect the public health. The Coalition believes, however, that the bill should call for cooperation between the Food and Drug Administration and EPA in this effort, as both agencies are already active on this front. FDA has far more expertise than EPA with respect to assessing the risks to human health posed by exposure to toxic substances through the consumption of food. Moreover, precisely the type of review of "standards and testing procedures" called for by S. 2593 is already well underway in the form of FDA's comprehensive review of its action levels for leachable lead in ceramicware and its procedures for enforcing those limits. EPA is also in the process of gathering the data it will need to determine whether it is appropriate to restrict or ban the use of lead under the TSCA. Accordingly, the Coalition recommends that the Bradley bill be modified to provide that standards and testing procedures be established by the Administrator, in consultation with the Commissioner of Food and Drugs. The agencies should, we believe, be able to complete their rulemaking proceedings within the time called for in the bill.

Given the fact that ceramicware is expressly addressed in section 107 of the Bradley bill, the Coalition assumes that ceramic tableware is not within the scope of title 2 of the legislation, which imposes a ban on lead in "packaging" and "packaging components." The legislative findings in section 201 of the bill confirm that the term "package" is used in the legislation in its ordinary sense -- that is, as pertaining to a container that is ordinarily disposed of after the product contained therein is used or consumed. The Coalition recommends that this focus be made more explicit by amending the definition of "package" in section 202(1) of the bill as follows (with the new language underlined):

> "package" means a container providing a means of marketing, protecting, or handling a product that is ordinarily disposed of following use or consumption of the product, and includes a unit package, an intermediate package, unsealed receptacles such as carrying cases, crates, cups, pails, rigid foil and such other trays, wrappers and wrapping films, bags, tubs, and shipping or other containers, as the Administrator, by regulation, may define.

This change will insure that the focus of the ban on lead in packaging remains on the types of disposable packaging that contribute so significantly to the overall solid waste stream. Ceramic cups and other tableware articles are an environmentally sound alternative to disposable packaging, in that they are simply reused repeatedly, until they are no longer serviceable. Such containers are simply not "packages" within the common meaning of the term or the underlying purposes of S. 2593.

THE COALITION OPPOSES THE CERAMICWARE PROVISIONS OF THE REID BILL

On balance, the Coalition for Safe Ceramicware opposes the Lead Exposure Reduction Act of 1990 (S. 2637), introduced by Senator Reid. Although the Reid bill contains a number of generic provisions with which the Coalition has no quarrel, those that pertain to ceramicware should not be enacted. S. 2637 would effectively ban the use of lead in ceramicware glazes, despite the fact that industrial low-solubility lead glazes can be -- and typically are -- formulated in such a way as to pose absolutely no threat to the public health, either through contamination of food or through disposal or incineration.

Before I address the particular provisions in the Reid bill to which we object, it is important for the Committee to have some understanding of the use of lead in ceramicware. Lead has been used in ceramicware glazes for centuries; and while numerous process improvements relating to the use of lead have been made over the years, it remains an indispensable material in the production of ceramic tableware. Lead-containing glazes are fluid during firing and give a very smooth, impervious surface that is less prone to scratching, chipping, knife marking, and the retention of food particles. This provides a benefit to public health by reducing the risk of microbial contamination.

Lead is also critical to the commercial salability of many ceramicware products. The addition of lead increases the refractive index of the ceramicware surface -- that is, the ability of the glaze to reflect light waves -- thus producing the brilliant surface associated with better quality chinaware. Lead helps develop colors and glazes to yield a wide variety of safe, bright colors, provided the glaze has been properly formulated to industry standards and adequately fired. Low-solubility lead glazes have been scientifically refined over many years to provide a chemically and mechanically durable surface and a good commercial product. Lead-containing glazes may also be fired at lower temperatures than non-leaded glazes, thereby saving energy, lowering production costs, and providing a better value product to the consumer.

The presence of lead in ceramicware glazes and enamels, in and of itself, is not a danger to the public health. The issue is the potential of the particular glaze or enamel to permit the lead to leach into food, water or the environment. The low-solubility lead glazes in common use today are formulated so that when properly fired, only minuscule amounts of lead will be released. This remains true even under the harshest of conditions, such as contact with acidic beverages for long periods of storage. Intensive quality control and in-house testing programs insure that commercial ceramicware manufacturers' products are within established safety limits. There is absolutely no reliable evidence of these products being associated with health problems.

I cannot stress enough the importance of understanding that the amount of lead in a glaze or enamel, by itself, has very little bearing upon the tendency of the glaze or enamel to release lead. Modern practice is to add lead to ceramic glaze through the use of lead-containing "frits," which are basically glasses that have been quenched and ground up into granules, powder or flakes. The fritting process itself tends to reduce the solubility of the lead oxide contained in the glass, but the degree of solubility is most dependent upon the precise chemical composition of the frit. For example, a frit containing over 60 percent by weight of lead oxide might have a lead release level of less than 1.0 ppm simply because the frit also includes about three percent alumina. On the other hand, a frit that is well under 10 percent lead oxide by weight could be extremely soluble -- with release levels of 150 ppm or more -- if the frit contains significant amounts of boron oxide, phosphates, or certain other chemicals. Only low-solubility lead frits are used to manufacture glazes and enamels for ceramic tableware.

With this as background, I would now like to describe the Coalition's specific objections to the Reid bill.

Ban of Glazes, Enamels and Frits Containing Lead

For what I hope are understandable reasons, the Coalition's primary objection to the Reid bill centers on section 402's "restriction" on the continuing use of "[g]lazes, enamels and frits containing more than 0.06 percent lead by dry weight." To call this a "restriction" on the use of lead in ceramicware is an understatement; it is in fact a ban. By prohibiting the manufacture and distribution of frits containing more than 0.06 percent lead by dry weight, effective 12 months after the date of enactment, the Reid bill effectively bans totally the use of lead-containing glazes and enamels.

Moreover, because the Reid bill has chosen such a low threshold limit (i.e., 0.06 percent), it may well be impossible for frit producers to guarantee that even leadless frit will always comply. The background level of lead in many naturally occurring raw materials is such that trace amounts of lead will normally be found in "leadless" frits.

This ban on lead frits is unwarranted. In introducing the legislation, Senator Reid stated generally that the legislative bans included in section 402 were directed at "lead-containing products that are extremely likely to contaminate the environment as a result of their use, or misuse." 136 Cong. Rep. S 6355 (May 16, 1990). There is absolutely no evidence to support this characterization of lead frits or the ceramicware glazes or enamels containing them. As an initial matter, it bears noting that ceramicware products contribute almost nothing to the total solid waste stream, as these products are reused repeatedly, and are often passed from generation to generation. Ceramicware products with low-solubility lead glazes, properly formulated and fired, are entirely safe to the extent that they are within FDA release limits. Moreover, ceramic products having glazes containing lead do not pose any threat to air or water as a result of incineration or other methods of disposal. Since lead-containing glazes are essentially glasses which were previously melted at temperatures greater than normal incinerator temperatures, the heat of incineration will, at best, simply remelt the glazes, but will not change their solubility or lead-release characteristics. Ceramicware complying with FDA action levels will, if disposed of in landfills, leach only negligible amounts of lead into the environment. Hence, there is no justification for the Reid bill's ban of lead frit and the ceramicware glazes and enamels that contain it.

While there has been continuous research into leadless glaze systems over many years -- and such work is intensifying -- no acceptable system is currently available for major segments of the ceramic tableware markets. There is no certainty that even our best efforts will produce a leadless system that will achieve the qualities now available in these products. For example, fine china simply will not withstand the higher temperatures that are needed to fire products using recently developed leadless glaze systems. Moreover, lead-free glazes are "softer" than those containing lead and show inferior resistance under both acidic service conditions (e.g., fruit juices) and alkaline conditions (e.g., dishwashing detergents). The service life is, therefore, shorter than for lead glazes. This leads to visible deterioration of the product and the danger of microbial contamination due to retention of food soil. Moreover, because leadless glaze systems cannot be used in kilns previously used to fire ceramicware with leaded glazes, the bill's proposed ban on lead frits, glazes and enamels would effectively require the entire ceramicware industry to junk the majority of its production machinery immediately. The bill would shut down the industry.

To be sure, section 402(b) of the Reid bill allows the EPA to promulgate regulations permitting the continued production of any of the banned products if it can be demonstrated that there is no "comparable substitute" for the banned product. This theoretically could allow the ceramicware industry to continue to use leaded glazes. However, the exemption authority exists for only three years. It is exceedingly difficult for any industry to operate under such uncertainty. The more important point, though, is that EPA has already begun a comprehensive program to review the major current uses of lead -- in the ceramic industry and elsewhere -- to evaluate their environmental and public health risks and the availability of acceptable substitutes. This program should be permitted to proceed so that EPA can determine whether it is appropriate to ban or limit the production of lead under its existing authority under the TSCA.

Product Labeling

Section 404 of the Reid bill further requires that all products containing more than 0.1 percent lead by dry weight be labeled, starting one year after the date of enactment, with the percentage of lead content in the product. This would effectively require all ceramicware with leaded glazes to be labeled. As an interim measure, the bill would require all lead-containing products to be labeled with the statement "Warning: Contains Lead."

The Coalition strongly opposes this labeling requirement. As previously noted, the quantity of lead present in a ceramicware glaze, in and of itself, is a meaningless number. Consumers would only be confused by such labels, and would be given the false impression that they would necessarily be exposed to lead simply because it is present in the glaze. If the ceramic tableware has been produced in compliance with FDA action levels, there is absolutely no danger to the consumer and therefore, no need to warn him or her about the presence of lead in the glaze.

CONCLUSION

In summary, the Coalition for Safe Ceramicware believes that the initiatives already being undertaken by the Food and Drug Administration and the Environmental Protection Agency are appropriate governmental responses to increasing concerns about the effect of lead on the public health and the environment. In all likelihood, these initiatives will result in stricter regulation of the use of lead. The Coalition intends to continue working closely with the agencies to ensure that these regulations are reasonable and are based on an accurate understanding of the use of lead in ceramicware glazes and the potential risks that such use entails. Both agencies already enjoy the power to take action to restrict lead use under existing statutory authority.

The Coalition believes the Bradley bill is an appropriate and reasonable congressional response to growing concerns about the effects of lead on public health and the environment. The bill should be amended to acknowledge FDA's ongoing rulemaking with respect to release limits for lead in ceramicware, and to clarify that the bill's packaging restrictions are not intended to apply to ceramicware products.

On the other hand, the Coalition urges the Committee to reject the ceramicware provisions of the Reid bill. The bill would ban the use of lead in ceramicware without any consideration of the availability of substitutes, assessment of the health risks posed, or analyses of the economic impact of such a step. Existing evidence indicates that ceramicware manufactured in accordance with FDA action levels is safe. The public health would not, therefore, be improved if the use of lead in ceramicware glazes were banned, or if consumers were warned that a glaze contains lead.

I appreciate the opportunity to testify today and will be pleased to answer your questions. Thank you.

Testimony by Steven Hilts
Hilts Mold & Manufacturing, Inc.
Henderson, Nevada

Before the Senate Environment and Public Works Committee, Subcommittee on Toxic Substances, Environmental Oversight, Research and Development Concerning §2637 The Lead Exposure Reduction Act of 1990

June 27, 1990

Mr. Chairman.

I appear before this Committee today representing our company, Hilts Mold and Manufacturing of Henderson, Nevada and also the other member companies of the American Fishing Tackle Manufacturers Association (AFTMA). With me is Dallas Miner, AFTMA's Vice President for Governmental Affairs.

Regrettably, we are here to express our strong opposition to §2637 because we believe it is unnecessary, will result in the loss of hundreds of jobs and businesses in our industry and at least with respect to lead weights used as fishing tackle will not achieve the result you are looking for.

First, I would like to briefly describe our industry and why we are compelled to oppose this bill.

Our industry relies on healthy, abundant fish stocks, clean water and public confidence in the health and safety of the fish they catch and consume. There are nearly 60 million anglers in this country who generate nearly $30 billion in economic activity pursuing their sport. Overall, fishing is the second most popular form of outdoor recreation for American adults.

The industry, which provides our Nation's anglers with the equipment they need and enjoy, is very much a labor-intensive, cottage industry. While we do have some fairly large companies which specialize in fishing tackle, the majority of tackle manufacturers employ less than 200 people per company. Most of these are small, family-owned businesses that serve local and regional markets. Unfortunately, it is these very companies that would be put out of business if this bill passes in its current form.

Lead has many small but important uses in fishing tackle besides fishing weights. The properties of lead are such that, at this time, there are few and in most cases no substitute materials available that could economically replace lead. Let me give you an example of what I mean. Lead is a very dense substance, weighing 707 pounds per cubic foot while potential substitute materials such as zinc or cast iron weigh 440 and 450 pounds per cubic foot. To acquire the desired weight to provide proper ballast for a fishing lure, the ballast pellets would have to be nearly twice their current size. This, in turn, would cause nearly eighty percent of our lure manufacturers to re-tool to change the shape and size of lure bodies. Re-tooling for injection molding would cost from a low of $5,000 per mold up to $30,000. Most lure manufacturers will have up to a dozen or more molds which would require modification. For many companies because of low profit margins in a very competitive part of the industry, the capital simply isn't available to make these changes.

Additionally, changing the size and shape of lures would clearly alter their performance. Years of research and development costing additional millions of dollars would be required to redevelop satisfactory products. And, in many cases, it simply couldn't be done. That is one example of the impact of replacing the use of lead in our industry. We know of only one substitute for lead that is as dense and pliable. Unfortunately, it is gold and obviously of no use here.

The sport fishing industry really only begins at the manufacturing level. Products from our industry enter the distribution system and flow through a network of buyers and distributors before reaching retail outlets and our consumers. For example, our manufacturers are currently starting the production phase for products that will not reach the consumer market place until winter of 1991/1992. What that means, of course, is that if this bill passes in this session of Congress the entire distribution system will be clogged with products which could not legally be sold. This, alone, would leave our major retail outlets such as K-Mart and Wall-Mart, and some 5,000 specialty fishing tackle supply stores around the country as well as key mail-order suppliers like Cabellas, Bass Pro, Gander Mountain, Orvis and L.L. Bean and others with hundreds of millions of dollars of products that they couldn't make available to their customers. This in our view, would represent an economic catastrophy for a broad reaching segment of this Country's Tackle manufacturing and product distribution system.

A rather important additional negative side effect of this disruption would be the loss of industry dollars to the Wallop/Breaux Trust Fund. As I'm sure you know, our industry voluntarily expanded the reach of an excise tax on our products to make more industry and consumer dollars available to the states for fishery management. Today, our manufacturers and importers send nearly $200 million to the U.S. Treasury to help support Federal and State fishery management programs. For many small manufacturers, the ten percent excise tax on their products exceeds their net profit margin. My point is that we and our customers are voluntarily paying a major portion of the bill for fish management in this country. Passage of this legislation would result in a precipitous short-to-mid-term drop in available non-governmental funds for public resource management and increase the pressure for additional outlays from Federal and State general revenues. In short, the goose that provides the golden egg for fishery management would be seriously crippled.

Another important point which should not be taken lightly is the fact that this bill would shut down manufacturers who currently are regulated and monitored under OSHA and by EPA and in turn would cause an immediate explosion in basement and garage production of lead weights, jigs and other tackle products that you seek to ban. The fact of the matter is, that this bill will not eliminate lead fishing weights and related products. It will simply shift the production of these products to unregulated sources.

When we learned of this proposed legislation, AFTMA sent a survey to its membership which asked, among others, the following question:

- Do substitute materials for your use of lead exist?

In response to that question, eighty one percent of the companies responding said no. I would be pleased to provide to the Committee the returns from AFTMA's questionnaire for your review.

But, in this process, the manufacturers also asked some very legitimate questions for which we believe they deserve answers. For example, where is the scientific evidence that links our products with any public health problem? We have not found any.

In our view §2593 offered by Senator Bradley is far more focused on proven problems where additional remedies may be appropriate. On the other hand, §2637 seeks a very sudden removal of nearly all uses of lead with no proof that the products being banned are a part of the problem.

The last point I want to make is that the fishing tackle industry is a very environmentally-conscious industry. Clean water, healthy habitat, and safe fish are vital to our long-term interests. Toward that end, we will voluntarily participate with EPA, beginning next month, to explore whether or not our products are part of any remaining lead problems and what if any steps can or should be taken to change to substitute materials. We trust this will be an orderly, responsible process that eventually will lead to some form of negotiated rule-making. We are fully prepared to work within this system and comply with its results. We are not prepared to simply shut down a major part of our industry which would occur if §2637 becomes law.

For these reasons our Association and its members have adopted the following position.

We oppose §2637 because:

1. The legislation is unnecessary since adequate State and Federal regulations currently exist to properly control the use of lead in the manufacturing process.

2. The Administration, through the U.S. Environmental Protection Agency is scheduled to begin a further review of lead in the environment this summer. The fishing tackle industry will be part of this process. §2637 would circumvent what appears to be an orderly, rationale approach to addressing lead pollution concerns. Instead, this bill would simply shut the door on a significant portion of our industry resulting in severe economic dislocation and the loss of American jobs.

3. While the fishing tackle industry has a vested interest in a clean aquatic environment and the safety of our Nation's fishery resources, there are no definitive studies or research that authoritatively document any public health related problems associated with fishing tackle products and, further, the amount of lead introduced into aquatic environment by lost fishing tackle is an immeasurable contribution to any remaining lead pollution problems.

Mr. Chairman and members of the Committee, I hope that the information and opinions I have shared with you are of value to your deliberations. Clearly, our industry has a lot at stake with this proposed legislation and we sincerely thank you for the opportunity to have a voice in this process.

Thank you.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
Rockville MD 20857

STATEMENT FOR THE RECORD

U.S. FOOD AND DRUG ADMINISTRATION
PUBLIC HEALTH SERVICE
DEPARTMENT OF HEALTH AND HUMAN SERVICES

SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL
OVERSIGHT, RESEARCH AND DEVELOPMENT
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

U.S. SENATE

JUNE 27, 1990

Mr. Chairman:

The Food and Drug Administration (FDA) appreciates this opportunity to submit its views for the record of the hearing on S. 2593, the "Lead Ban Act of 1990," and S. 2637, the "Lead Exposure Reduction Act of 1990." Both bills attempt to reduce lead contamination in the environment and, thereby, human exposure to lead, through restrictions on the use of products that contain lead in excess of specified amounts, and requirements for recycling lead containing products, such as batteries. The bills would also establish programs for lead abatement and for research on human exposure to lead through blood-lead level monitoring.

This statement will discuss the current responsibilities of FDA regarding the regulation of lead levels in our food supply and lead-containing cosmetics. We are concerned that FDA's long-standing and integral role in reducing lead ingestion from food and food related products is not recognized in either S. 2593 and S. 2637.

GENERAL BACKGROUND

Lead is a toxic metal with no known health benefit to humans. The presence of lead in foods has been of concern to FDA and its predecessor agency throughout this century.

It has never been established that lead is an essential nutrient for any organism. The metal is, nevertheless, incorporated into all living organisms through the ubiquitous distribution of lead in the environment (soil and water). Most of the lead to which we are exposed stems from man-made activities. American industry, for example, contributes several hundred thousand tons of lead to the environment each year. Industrial emissions, effluents and discharges, as well as by-products from the burning of gasoline, have been continuous sources of lead contamination in the environment.

Lead can also be a problem in some community water supplies, with old lead service pipes and mains of water systems as one source. Household plumbing, especially in older homes with lead or lead alloy pipes, is another source; also, lead solder was once commonly used to join copper piping. Soft water, which is slightly acidic, can corrode lead pipes and solder, causing the lead to leach into the water.

As a consequence of this environmental contamination, lead is inhaled from the air we breathe, consumed in the water we drink and absorbed through our exposure to dust and soil. A certain amount of lead is inevitably consumed in the food we eat since both crops and animals are contaminated from environmental sources.

Atmospheric lead is deposited directly on vegetation and absorbed by plants from the soil. Crops grown near heavily traveled roads, for example, generally have greater lead levels than those grown at greater distances from traffic. Runoff water from mining operations may cause additional lead to enter food and feed crops in certain geographical areas. Lead can also enter the food supply from non-environmental sources, namely, from food processing equipment, lead solder in cans, and leaching from ceramicware.

Lead accumulates in the human body gradually over a lifetime, residing mainly in bones, with smaller amounts accumulating in soft tissue. The risk to infants and children and to the developing fetus is of major concern because they are more susceptible to lead toxicity. Additional attention may be warranted for women of childbearing age, since lead stored in bone may be released during pregnancy.

High levels of lead can affect every part of the body, including the nervous system, kidneys, liver, the processes by which blood is formed, and the reproductive, cardiovascular, immune and gastrointestinal systems. Even at low levels once thought to be acceptable, there is evidence that lead affects growth and can cause learning and behavioral disorders in children. There is no known safe level for lead in the body. Scientific evidence has shown, however, that the levels of lead in the American public have been reduced. For example, lead levels in blood in the U.S. population were reduced by one-third between 1976 and 1980 as a result of a Federal effort to phase out leaded gasoline for cars, a ban on lead-based interior house paints, and other actions. There is no indication that the trend toward lower lead levels in the U.S. population overall will not continue.

HISTORICAL OVERVIEW OF LEAD EXPOSURE REDUCTION

Over the years, various Federal agencies have tried to minimize the exposure of the population to lead. FDA's interest in the health risk from lead in cans and other controllable sources of lead dates virtually from the enactment of the Food and Drugs Act of 1906. In the 1930's FDA devoted considerable research and regulatory resources to control lead residues resulting from the spraying of lead-containing pesticides on fruits and vegetables. In 1934 FDA performed analytical research to investigate the effect of storage on the lead content of evaporated milk. FDA developed methods for detecting and measuring lead in foods in 1934 and 1935.

Due to the shortage of tin during World War II, research was conducted to develop a lead-tin solder with the least amount of tin content that would be both functional and acceptable under the circumstances. On the basis of these studies, FDA concluded that a lead-tin solder containing 98 percent lead and only 2 percent tin was safe for use in tin cans for food and in food processing equipment if good manufacturing practices were observed. This effort, born of wartime necessity, to reduce the use of tin by raising the amount of lead used in sealing food cans, provides an interesting footnote to FDA's lead reduction efforts.

FDA launched its major lead control initiative in the 1970's, the goal of which was the reduction of lead in canned foods, which at one time contributed about one-third of the lead the average person obtained from food. Through a cooperative effort between FDA and the domestic canning industry, lead from this source has been reduced substantially (approximately 90%). Special emphasis was given to children's foods, and to reduction of lead migration into food from pottery glazes. FDA worked with manufacturers of evaporated milk, infant formula, juices and other foods to reduce the levels of lead in those products. In 1973, FDA initiated a quality assurance program with the evaporated milk industry to effect substantial reductions in the amounts of lead that were being found in that product. The results were excellent. The average finding today in evaporated milk is 0.01 parts per million (ppm), down from 0.52 ppm in the early 1970's.

Reductions in lead levels by the infant and baby food industry were attained by various means. The producers of evaporated milk improved their technology in can-making and in the canning processes, and eventually stopped using the lead-containing can altogether. In the case of infant formula, almost all production has been shifted from the use of lead-soldered 3-piece cans to other types of cans. Infant juices are now packed in glass containers. The manufacturers of glass-packed pureed baby foods achieved reductions by more careful selection of raw products and better quality control techniques.

In 1979, FDA announced plans to reduce lead in all food from lead-soldered cans by at least 50 percent, an effort that has been strongly supported by the canning industry. Indicative of the success of this program are data that show the number of lead-soldered cans used for domestically-manufactured food declined from ninety percent of the containers used in 1979 to less than four percent in 1989. FDA continues to work with the canning industry to review progress and to obtain updated data on canning practices.

OTHER FDA ACTIVITIES CONCERNING LEAD

FDA currently has a number of other programs to monitor and reduce the amount of lead in the food supply.

Total Diet Study

One of FDA's most significant monitoring programs is the Total Diet Study, which is designed to estimate the dietary intakes of various nutrients and contaminants, including lead, for eight age/sex groups, from infants to senior citizens. FDA personnel purchase "market baskets" of 234 food items each, that typify the American diet, based on extensive dietary surveys. These market baskets are bought from local supermarkets or grocery stores just as a shopper would do, 4 times per year throughout the United States. The foods are prepared table-ready, and then are analyzed for essential nutrients and various contaminants, including heavy metals, pesticides, radionuclides, and industrial chemicals. The results of these analyses, coupled with data on the amounts of these foods consumed, allow for calculations of the dietary intakes of contaminants in a variety of different population groups based on age and gender. Thus, these data provide a means for FDA scientists to estimate the actual amount of these substances consumed in foods as they are customarily eaten.

For example, according to data from the 1982 Total Diet Study, the average lead intake for children weighing 9 kg (6-11 months old) was 15.5 micrograms per day; for children weighing 13 kg (2 years old) the average daily lead intake was 25.2 micrograms. By 1988-89, the Total Diet Study data reveal that the average lead intake had dropped for these two groups to 4.8 micrograms and 5.0 micrograms per day, respectively. In short the data from the Total Diet Study show that from 1982 to the present, total lead in the overall diet is declining.

Lead in Ceramicware

FDA is also responsible for evaluating the safety of materials that come into contact with foods. Lead has been a common component in glazing materials for ceramic dishes, bowls, pitchers, plates, and other earthenware for centuries, and most ceramicware products sold in the United States today are coated with glazes that contain lead. A glaze is a thin, glassy coating that is applied and fused onto a shaped body of clay. A glaze containing lead has to be heated, or fired, to a high enough temperature for a sufficient length of time to be sure it is safe. If glazes are properly formulated, applied, and fired, the final product will not generally leach lead.

The principal danger to consumers occurs with products that are not properly formulated and fired--especially if they are used to store foods high in acid content for prolonged periods. The acid in various foods interacts chemically with the glaze's components. If the ceramicware is improperly manufactured, the acid in foods can accelerate the leaching of lead from the finish. FDA became aware of the problem of lead migration into food from pottery glazes in 1969 after a California family suffered severe lead poisoning from drinking orange juice stored in a pitcher purchased in Mexico.

Following a survey in 1970 of imported pottery which found high levels of lead migration, FDA formalized a compliance program in May 1971, which is still in effect, for coverage of foreign and domestic pottery. Under this program FDA has inspected factories and analyzed samples from every major domestic manufacturer of ceramic dinnerware. The rate of violation by domestic manufacturers of the limits set by FDA for lead leaching has been relatively low. The Agency also samples imported ceramicware each year; the violation rate for these products has been higher than that for domestic items. Items exceeding the limits we established have been denied entry into the United States.

FDA first established limits of release from ceramic foodware of 7 ppm for lead in 1971. These levels were lowered in 1980 based upon recommendations from the World Health Organization and vary according to the size and use of the product. Thus, for flatware (plates and saucers), the level of lead that may leach into food over a 24-hour period (in our test the ceramicware is exposed to a chemical leaching solution for 24 hours) was set at less than 7 ppm; for small hollowware (coffee and tea cups, small juice containers, cereal bowls, etc.), less than 5 ppm; and for large hollowware (pitchers and bowls), less than 2.5 ppm. The lowest limits were established for those types of ceramicware, such as pitchers, that are generally used for storing acidic foods, such as orange juice, since they represent the greatest potential health hazard. FDA is currently reviewing these limits and intends to revise them downward where possible. One of the latest actions taken by FDA in this area was a proposal, published on June 1, 1989, to lower the regulatory limit to 0.1 ppm for leaching of lead from ceramic pitchers.

When FDA has found ceramic products that leach lead in excess of regulatory limits, FDA has refused to allow imported products to enter the United States and domestic products to be distributed. For products already in distribution in the country, FDA can ask manufacturers or distributors to recall unsafe products from the marketplace or have them seized by the courts.

As stated earlier, FDA samples both domestic and imported ceramicware for toxic metals. FDA's imports program provides for detention of ceramic products that leach lead in excess of established levels. FDA determines this by exposing them to a leaching solution of 4 percent acetic acid for 24 hours. The amount of lead or cadmium that has migrated into the solution, if any, is then measured.

This procedure, which FDA pioneered, is now the standard national and international test for detecting lead and cadmium in ceramicware, and the Agency will continue to use it as a final, confirmatory test to support its regulatory actions. To improve its ability to test ceramics for lead, FDA developed a quick "screening" test that can be used at a port or manufacturing facility by FDA inspectors to rapidly screen out ceramics that are not actionable. The confirmatory lab test would then only be needed for those pieces that generate a positive reading on the screening test. This tool was developed by scientists in FDA headquarters, and pilot tested by FDA's San Francisco District. The test is now available for routine use by FDA field offices to identify ceramics that are likely to leach lead in excess of established levels. This test has been patented and made available for commercial marketing. This should prove useful to consumers, wholesalers, manufacturers, retailers, and importers in detecting, prior to purchase, if ceramic goods are likely to be in violation of the federal Food, Drug, and Cosmetic Act (FDC Act).

Other activities FDA has undertaken with respect to lead include: issuance of a joint Federal policy statement with other Public Health Service agencies, the Environmental Protection Agency (EPA) and the Department of Agriculture (USDA) regarding the use of municipal sewage sludge in the production of fruits and vegetables; continued research on development of analytical methods; an evaporated milk survey following conversion of the industry to non-lead soldered cans; a Memorandum of Understanding with the Peoples' Republic of China and agreements with other countries to certify that lead levels in ceramicware from the country fall below FDA's action level (negotiations with other countries are in progress); public education programs, including poison prevention awareness, to alert the public to the hazards of lead leaching from improperly glazed ceramicware; and ongoing monitoring of foods, food packaging, and food contact materials for the presence of lead.

For the Subcommittee's information, a chronology of FDA's activities regarding lead is attached.

LEGISLATION

FDA supports the goal of the bills and the efforts of Congress to reduce sources of lead contamination in the environment and, thereby, human exposure to lead. We defer to EPA regarding the overall direction of the legislation and provisions that would give EPA authority with respect to reduction of lead contamination in the environment.

FDA is concerned, however, because the bills fail to acknowledge FDA's existing statutory authority under the FDC Act to regulate the safety of foods, including food packaging and ceramicware, and cosmetic products, and instead, would assign the responsibility for reduction of lead levels in these areas to EPA. FDA believes that recognition of existing statutory roles will prevent conflicts with existing laws and regulations; such recognition is needed to insure that the recognized expertise of each agency is used effectively to deal with this public health problem.

Because FDA has jurisdiction over food and cosmetics, the following comments are directed to those provisions of the bills that would set minimum levels for lead in these products. In many cases, the control of environmental lead has a beneficial effect on lead levels in food, e.g., reduction of lead in gasoline may in turn reduce lead deposition on field crops grown near highways. We support regulation by EPA of sources whereby lead is introduced into the environment. In the case of food and cosmetics, EPA and the Subcommittee staff may wish to separate environmental concerns from considerations about the safety of consumer products. Legislation in support of this goal should reflect the statutory authority vested in FDA to regulate food safety.

Our specific concerns about the bills follow.

S. 2593

S. 2593 would prohibit the use of food containers with leaded solder seams. Because of the sensitivity of children and fetuses to lead, and because children and women of child-bearing age may consume food from lead soldered cans, FDA is currently taking actions that are expected to result in the elimination of the use not only of lead solder for domestic food cans, but also lead soldered cans for imported foods.

The bill would prohibit the use of lead in "chemical compounds applied to foods." The bill does not, however, define "chemical compounds," nor is there an existing statutory definition for this term. Because of the wording in the bill, the term may be construed to mean only products that are directly added or applied to foods. FDA regulates many ingredients for use in foods (e.g., food and color additives, substances that are Generally Recognized as Safe, etc.), monitors the food supply based on regulatory limits for various contaminants, and enforces tolerances which have been established by EPA for pesticide residues found in or on foods. FDA has also participated in the development of National Academy of Science Food Chemical Codex specifications for lead in many food ingredients, and is reviewing these specifications to determine the need for change.

The bill would require EPA to establish standards and testing procedures for lead in ceramicware. We believe this provision to be unnecessary since, as mentioned before, such standards and tests have already been developed by FDA scientists and are used internationally as the standard method for measuring the amount of lead that leaches from ceramicware. FDA is continually updating these methods.

The bill would also prohibit the use of lead in the manufacture of cosmetics, including hair sprays and hair coloring. At the present time, the use of lead acetate as a color additive in hair dyes is the only approved use of lead in cosmetics, a use that was approved only after extensive scientific review. The results of this review, published in October 1980, included exposure evaluations that indicated that lead was not absorbed from these products to any great extent.

S. 2637

S. 2637 would also restrict use of lead solder in the manufacture of cans and, 18 months following enactment of the bill, would prohibit lead soldered cans from commerce. As noted before, FDA's actions and programs have already resulted in a significant decrease of the use of lead solder in cans. Although the percentage of food cans that still use lead solder is small (less than four percent for domestically manufactured cans), the absolute number of cans is still significant. FDA supports a ban on the use of lead solder in cans. A reasonable deadline following a ban on lead soldered cans would enable cans manufactured prior to the enactment of the bill to clear normal commercial channels.

S. 2637 would prohibit the use of products that contain lead on a dry weight basis in excess of levels established in the bill. We do not support this provision. While this approach may be appropriate from the standpoint of controlling overall lead in the environment, food safety concerns require alternative considerations. That is, whether or not lead will leach from the product may be more important from a food safety standpoint than the product's actual lead content. For example, glaze on ceramicware, if properly applied and fired, should not generally leach lead into foods in detectable amounts. The quantity of lead in the glaze is not the determining factor with respect to whether or not the lead will migrate into the food.

The bill would limit the lead content of foil capsules in wine bottles to 0.1 percent lead by dry weight. FDA has found elevated levels of lead in some wines, and some of this lead has been linked to the use of lead capsules. Since alternatives to lead foil capsules exist, FDA is preparing to propose regulations to eliminate their use.

The bill would require EPA to consult with the Centers for Disease Control to conduct research on the sources of lead exposure in children, including drinking water, food, lead-based paint, and ambient air and soil. We believe the bill should require consultation with FDA as well, and recognize FDA's authority in all matters relating to lead in foods. The bill should also provide for research regarding background levels of lead; for example, "leadless" glazes may still contain lead at detectable levels.

CONCLUSION

FDA is committed to a safe food supply, safe food packaging, and safe cosmetic products, and will continue to pursue all avenues to remove controllable lead from the American diet. We believe that our efforts over the years have already substantially reduced lead levels in the diet, and we are actively seeking ways to reduce those levels further still.

FDA supports the goal of the bills and the efforts of Congress to lower lead contamination in the environment and, thereby, human exposure to lead. FDA objects, however, to provisions in the bills that give to EPA responsibilities that have been statutorily assigned to FDA under the FDC Act to regulate foods, food packaging, ceramicware and cosmetics. FDA believes that any legislation in this area should be consistent with established statutory roles in order to prevent conflicts with existing laws and regulations, and effectively use the expertise of each agency to deal with this public health problem.

For the above reasons, FDA opposes provisions contained in S. 2593 and S. 2637 as currently drafted, and is willing to discuss further with the Subcommittee the Agency's concerns about these provisions.

CHRONOLOGICAL OUTLINE OF FDA ACTIVITIES ON LEAD

- 1930 Initiated enforcement program on lead-based pesticides in fruits and vegetables.
- 1934-5 New methods developed for the analysis of lead in food.
- 1940+ As a war effort, lead-tin solder reformulated from 63% lead/37% tin to current level of 98% lead/2% tin.
- 1962 PHS set drinking water standard of 50 ppb lead (3/6/62)
- 1970 Surveyed leachable lead in imported ceramicware.
- 1971 Set action level of 7 ppm of lead from ceramicware to special leaching solution. Worked with industry on self-surveillance programs to limit lead migration.
- 1971+ Added enamelware and pewter to existing CPG.
- 1971+ Added silver-plated hollowware to existing CPG.
- 1971+ Set action level of 0.5 ppm leachable lead for silver-plated cups intended for use by infants.
- 1971 Ad Hoc HEW Committee of Experts on Pediatric Lead establish guideline of 300 µg/day as the maximum daily exposure to lead for children aged 1-3 years.
- 1973 Began analysis for lead in Total Diet Study.
- 1973 50 ppb limit of lead (11/26/73) set for bottled water.
- 1977 Ad Hoc HEW Committee recommends total lead exposure not exceed 100 µg/day for infants under 6 months and 150 µg/day for children 6 months to 2 years.
- 1978 FDA notice of guidelines on lead and cadmium in decorated glass tumblers.
- 1978 Lead acetate permanently listed as a color additive for hair dyes.
- 1979 Published plan to reduce the lead content of canned foods by 50%.
- 1979 Infant juice and infant food manufacturers completed voluntary switch from lead soldered cans to glass jars.

• 1979	Published MOU with EPA and USDA for a study on background concentrations of cadmium, lead and other selected metals in soils and crops in major production areas (44 FR 44940).
• 1979	Action levels for lead in ceramicware foodware (μg lead per mL leaching solution) set for: flatware - 7; small holloware - 5.0; large holloware - 2.5 μg lead.
• 1982	Joint EPA, FDA and USDA Statement of Federal Policy and Guidance published on Land Application of Municipal Sewage Sludge for the Production of Fruits and Vegetables.
• 1982	Study finds lead in bone meal up to 12.8 ppm.
• 1985	Evaporated milk industry in U.S. completed conversion to non-lead soldered cans. FDA conducts evaporated milk survey.
• 1988	Congressional hearing on lead in housewares (June 27).
• 1988	MOU formalized with China (PRC) providing for certification by the Chinese government that ceramicware is below the FDA action level.
• 1989	Published a provisional tolerable intake for food of 6-18 μg/day for 10 kg child. Proposed a regulatory limit for ceramic pitchers of 0.1 μg/mL (25 to 50 times lower than current action level.
• 1989	Began investigation based on limited data that some coffee urns may release significant amounts of lead.
• 1990	Reevaluating approaches to control leachable lead in other ceramicware such as cookware and flatware.
• 1990	Evaluating the value to public health of eliminating the use of lead in solder for food cans.

STATE OF CONNECTICUT
DEPARTMENT OF HEALTH SERVICES

OFFICE OF COMMISSIONER

June 27, 1990

Senator Harry Reid, Chairman
Subcommittee on Toxic Substances
Environmental Oversite, Research and Development
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Senator Reid:

The staff in my Department have taken considerable effort to review the Proposed Lead Exposure Reduction Act of 1990. They have provided me with an analysis of the proposed act that follows. One thing that they and I are in total agreement on is that lead poisoning in children and adults is an environmental hazard that can and should be prevented. The sooner that actions are taken to reduce lead poisoning the better.

The Connecticut State Department of Health Services is in support of the Lead Exposure Reduction Act of 1990 and offers the following comments towards its improvement.

- Section 401(a)(6) - We recommend that consideration be given to abating other sources of lead exposure than lead based paint. For example, soil, dust and water may in some cases present a greater hazard than lead based paint. These concerns should be reflected in this section as they are throughout this proposal.
- Section 402 - The proposal to restrict the continuing use of lead is highly desirable.
- Section 402(a)(7) - Should be broadened or another item should be listed to cover compost. This Department has reviewed one composting proposal and has become concerned about the level of heavy metals including lead that may be found in compost depending on the materials used to manufacture the final product.
- Section 403 - We are concerned with the amount of lead found in sewage sludge especially if the sludge is composted or applied directly to the land. Some provision should be made in this proposed law to address that issue.
- Section 404 - Composted material should be required to be labeled as any other product.
- Section 405 - We are in agreement with this section which would regulate the disposal of lead acid batteries.

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- Section 408 - We support this section as written. The following comments are made towards its improvement:
  Section 408(d) - We are in the process of establishing regulations concerning contractor training and certification. We would be pleased to share our information in this area with the members of the subcommittee at their request. One additional category of individuals that might be included in training and certification is a Project Monitor. We have found an individual with this title to be very useful with regard to asbestos abatement projects and will also consider it with lead abatement.
  Sections (f), (g) - Will provide information that will be very useful to state agencies in the implementation of their lead poison prevention programs.
  Section (i) - Will also provide very useful information for state health departments. Studies of lead exposure in children will assist us greatly in setting priorities and program direction. It is important that other sources of lead such as dust and lead brought home from the occupational environment be addressed in studies of this type.
- Section 409 - The Environmental Protection Agency has had a good record with the centers that have been established with regard to asbestos and radon. Training and educational facilities of this type should be considered along with research oriented centers. This Department is concerned that any research center be charged with providing information that can be transferred to practical, preventive program measures.
  The subcommittee should also consider the use of state health departments and selected medical facilities that can carry out research which would have an impact equal to that of research done in institutions of higher learning. Some state health departments including Connecticut's have proven experience in research projects.
- Section 424(2) - The development of improved techniques should also include techniques for transportation of the sample.
- Section 5 Revised National Primary Drinking Water Regulation for Lead: The removal of lead from drinking water should be a high priority for any lead poison prevention program. The problems we have been facing in Connecticut with regard to this issue relate to the enforcement of a maximum contaminant level of 5 micrograms per liter measured at the end users tap and the legal and privacy issues related to monitoring at the end users tap. This is a difficult issue that needs a practical approach.

There are two other areas that I would like the Committee to consider. One of these concerns studies and research that are needed to identify children who are at risk for lead poisoning due to physical, health or nutritional status. We need to better understand what kind of treatment or nutritional changes can be implemented in order to reduce a child's blood lead level.

The financing of lead abatement and medical treatment is, of course, a major challenge. We have known what lead does to the brain of an infant or child for over 140 years and yet we continue to recycle a segment of each new generation of children through lead contaminated housing stock. It is also understood that some children afflicted with lead poisoning do not get treated because of the lack of fiscal resources.

We must use this legislation as an opportunity to build commitment and to stimulate innovative programs to address what we consider to be one of the most significant environmental public health threats. Funding must be made available for lead abatement and medical treatment. Innovative programs have been developed to finance the resolution of issues such as waste disposal. Similar innovation is needed to address this clearly defined health threat.

A multidisciplinary group (which could include banking; insurance companies; health departments, state and local; housing departments; builders; the Environmental Protection Agency, etc.) should be convened to develop a strategy for financing lead abatement and medical treatment.

Should you have any questions concerning this information or need material concerning Connecticut's lead poison prevention activities please contact Mr. Paul Schur, Director, Environmental Health Services Division, 150 Washington Street, Hartford, Connecticut 06106-4474 or telephone him at (203) 566-3186.

Sincerely yours,

Frederick G. Adams, D.DS, M.P.H.

Frederick G. Adams, D.D.S., M.P.H.
Commissioner
Department of Health Services

FGA:PMS:dyt/5959B

ART & CRAFT MATERIALS INSTITUTE
QUALITY · SAFETY

**THE ART & CRAFT
MATERIALS INSTITUTE, INC.**
715 Boylston Street
Boston, MA 02116
Tel. 617/266-6800
Fax: 617/236-1954

Deborah M. Fanning, CAE
Executive Vice President

July 5, 1990

Mr. Paul Chimes
Senate Environmental and Public Works
Committee
Dirksen 458
Washington, DC 20510

Dear Mr. Chimes:

Enclosed is the written testimony with enclosures of The Art and Craft Materials Institute, Inc. to two Senate bills - S-2593 and S-2637 - on lead. We respectfully request that our testimony be considered by the Committee. Thank you.

Sincerely,

Deborah M. Fanning

Deborah M. Fanning, CAE
Executive Vice President

DMF:ld
Enclosures

LOOK FOR THESE SEALS............. CP NONTOXIC AP NONTOXIC HEALTH LABEL

TESTIMONY TO THE SENATE COMMITTEE ON THE ENVIRONMENT AND PUBLIC WORKS

On S-2593 and S-2637

Submitted by The Art and Craft Materials Institute, Inc.
June 27, 1990

These comments are submitted on behalf of the art material manufacturers of The Art and Craft Materials Institute, Inc. ("ACMI") and their customers in response to the introduction of S-2593 and S-2637 which would in effect ban the use of lead in art materials.

ACMI has for fifty years operated a toxicity certification program for art material products and has cooperated with the Consumer Product Safety Commission ("CPSC") to develop appropriate chronic health hazard product labeling standards, among the first such standards to be developed in the United States for consumer products. Historically, the origins of some of the toxicity product standards enforced at present by CPSC were originally developed by FDA. More recently ACMI participated in the development of one of the first consumer product chronic health labeling standards, ASTM D-4236, which was subsequently enacted by Congress in 1988, as an amendment to the Federal Hazardous Substances Act.

Since 1940, ACMI has been evaluating and certifying that children's art materials are completely non-toxic and that most meet high quality standards to provide dependable working properties and true, bright colors for full creative expression. Young children may chew crayons, drink tempera, eat paste and lick paint brushes. Therefore, the products they use must be safe. In 1982, ACMI began to evaluate adult art materials as well, to offer artists and other professionals lifelong health protection and safe-use information about the materials they use. Some art materials used by artists contain substances that can present health hazards with improper or careless use, because a non-toxic substitute in not available or does not meet the artist's requirements of workmanship, permanence or color. Manufacturers of art materials are concerned about the health and safety of all consumers using their products and thus have their products certified.

Certified art materials are safe to use by both children and adults. They have been evaluated by an eminent toxicologist and labeled by their manufacturers as non-toxic or with cautionary use instructions where misuse could present a potential health risk. All certified art materials meant for children are completely non-toxic, with no acute or chronic health risks. The small percentage of art materials that do contain an ingredient that could pose a potential health risk are materials manufactured for adult artists, who can read and understand the health and use information provided on the label by the manufacturer. Art materials with a health warning should not be used by young children or any other individual who cannot understand the product label.

NOTE: Attachments to this statement have been retained in committee files.

The CP, AP and HL (Non-Toxic) Seals identify art materials that are safe and that are certified in a toxicological evaluation by a medical expert to contain no materials in sufficient quantities to be toxic or injurious to humans or to cause acute or chronic health hazards. All children's art materials in the ACMI program and 85% of the adult art materials evaluated by ACMI bear these non-toxic seals. Products with the CP Seal or the ACMI Certified Quality Conformance Statement are certified to meet specific requirements of material, workmanship, working qualities, and color of appropriate quality standards. (ACMI's AP and HL (Non-Toxic) Seals assure safety only.) Products in the ACMI program which have earned a non-toxic rating include crayons, water colors, tempera colors, finger paints, chalks, modeling materials, block printing inks and media, drawing inks and media, etching inks and media, screen printing inks and media, school pastes and adhesives, acrylic and oil paints and media, marking crayons and other art materials.

The HL (Cautions Required) Seal identifies products that are certified to be properly labeled in a program of toxicological evaluation by a medical expert for any known health risks and with information on the safe and proper use of these materials. This seal appears on only 15% of the adult art materials in the ACMI program and on none of the children's materials. More than 17,000 art materials have currently been evaluated in the ACMI program.

Art materials displaying the CP/AP/HL Seals have been evaluated by ACMI's toxicologist. In this evaluation, the toxicologist takes into account:

1. Each ingredient and its quantity.
2. Possible adverse interaction with other substances.
3. The product's size and packaging.
4. Potential acute or chronic harm to any part of the human body.
5. Possible allergic reactions.

The toxicologist must approve the formula of every color of every product and must approve every formula change. Safety is the only consideration. The toxocologist will not heed objections related to cost. The toxicologist keeps abreast of new, scientific data on ingredients from government and private sources. The toxicologist has banned previously-approved ingredients and established restrictions when new developments occurred. The toxocologist requires cautionary labeling on products when appropriate. These decisions are final, subject only to appeal to the Institute's Toxocological Advisory Board, which is composed of three of the leading toxicological experts in the United States, Dr. Leonard Goldwater, Dr. Jay Arena, and Dr. Tom Miya.

Product formulas for every product in the certification program are submitted by manufacturers to the Institute's toxicologist for his evaluation as to whether a product is non-toxic or whether health and use cautionary labels are needed. These formulas undergo an extensive toxicological review and testing as deemed necessary by the toxicologist. The Institute also conducts annual random testing of products to ensure that these products continue to be as represented to the Institute.

Renewed concern is currently being expressed by scientists, medical personnel and others about the presence of lead in the environment. Thus, many specific areas of possible lead exposure are being re-evaluated. Doctors and toxicologists continually re-examine acceptable blood lead levels, and some are recommending lower acceptable levels, particularly for children who are more susceptible to the effects of lead exposure in their formative years. The FDA is re-assessing its current lead-release standard for pitchers and other large ceramic hollow-ware. Manufacturers of dinnerware and of ceramic glazes intended for dinnerware test their products, which meet or are well below the current FDA standards. However, concern is being expressed about ceramic-ware being imported from other countries that do not meet this standard.

Lead in art materials is found only in certain ceramic glazes and in flake white and some other oil colors. Flake white is an oil color which is essential in preparing an oil canvas to give adult artists the permanence necessary for a work of art and for which there is no substitute. Because of this fact, flake white was exempted from the ban on lead in paint under the Federal Hazardous Substances Act (FHSA); however, it was not exempted from the labeling requirements of FHSA.

Lead is used in some hobby and artists ceramic glazes because it is required to allow glazes to mature at lower kiln temperatures, to fire properly in kilns without precise firing temperatures, to prevent cracking, to provide certain colors not otherwise attained, and to withstand repeated dishwasher use. Thus, lead is essential to providing a high-quality, safe glaze, and no other ingredient supplies the same effects. "Food-safe" glazes are lead-containing glazes which, if fired to cone 06 (1,830 degrees F) or higher, will comply with the Food and Drug Administration's Safety requirements for lead release from finished articles. To assure that glazes have been initially certified as food-safe continue to be so, manufacturers participate in a program that periodically tests the lead release of articles finished with these glazes. Glazes that are certified as food-safe will release less than 2 ppm lead when a standard 8 oz. cup fired with such a glaze is tested by FDA method.

However, lead-free glazes have been developed for use in institutions (less than 5% of the market for hobby glazes) and by consumers such as children who need a glaze that requires no precautions during its use. According to ACMI's toxicologist, Woodhall Stopford, M.D., M.S.P.H. of Duke University Medical Center's Division of Occupational Medicine, lead-containing hobby glazes should only be used by individuals who are capable of following safety guidelines; if supervision is required (grade schools, hospitals, nursing homes, mental institutions), lead-free hobby glazes should be used.

Under a new labeling law passed by the U.S. Congress in October 1988, every manufacturer of art materials, not just the 85% belonging to ACMI, will have to evaluate their products for their ability to cause chronic illness and to place warning labels on those that do. Public Law 100-695 also requires a statement on the label of such products that they are inappropriate for children and prohibits their purchase for use in grades pre-kindergarten through grade 6 (Copy enclosed).

For those art and ceramic materials that contain lead and other heavy metals, there are currently available no feasible substitutes that will create pieces of work to the standards of professional artists and craftsmen, despite untold years of research and expenditure of significant amounts by members of ACMI and others. ACMI-member manufacturers have formulated out of their products any ingredients that cause a hazard wherever possible. They are also investigating any and all substitutes for packaging for their products, such as lead tubes for paints and are experiencing difficulty in finding substitutes for certain products such as acrylics.

We respectfully request that an exemption for art materials from these bills be considered for the following reasons.

1. Art materials are already evaluated and labeled for acute and chronic hazards both voluntarily by the industry and regulated by CPSC under FHSA so art and craft professionals are well aware how to use these products, even if they contain an ingredient that may be hazardous. Non-toxic products have been developed and labeled as non-toxic for those consumers who do not need to use professional-quality products.

2. Artists can ill afford to lose those products which have traditionally been and remain essential to their ability to create a work of art.

3. Artists almost never dispose of art materials containing lead or other heavy metals because they use all of such art materials due to their high cost. In additon, artists create these works of art in such a manner that the finished artwork does not expose the public to any hazards. Ceramic artists finish their products by proper firing so that the consumer is not exposed to any hazardous ingredients.

We offer several additional specific reasons in opposition to the bills currently before the Committee:

S-2593

Section 107 of this bill would require the EPA Administrator to establish standards and testing procedures with respect to lead in ceramicware as may be necessary to protect public health and to report to the Congress on the standards and procedures established pursuant to the section.

This would amount to a virtual duplication of the rulemaking proceeding announced by the FDA in the Federal Register on June 1, 1989 (54 Fed. Reg. 23,495). ACMI participated in that proceeding through the Coalition for Safe Ceramicware and submitted a "Response Supplemental to Comments of Coalition for Safe Ceramicware." A copy of our submission in that proceeding is enclosed for the Committee's review. In its comments, ACMI proposed to FDA the use of a new symbol to accompany the required warning label for decorative or ornamental ceramicware not intended for food service use to alert the potential user that the item might leach lead above the levels permitted for food service use. Such finished items would only leach lead if misused.

EPA itself has announced that it will commence its own rulemaking proceeding on lead, expected to begin in August.

To the extent that your Committee's interest in the effect of lead in ceramics is one from the environmental health perspective, we offer as an observation that finished artists' ceramicware products are a negligible source of lead in the solid waste stream, if at all. Professional ceramic works are permanent works of art. Hobbyists' ceramic works are similarly permanent decorative items.

As a small industry, glaze manufacturers in ACMI find the prospect of a second EPA rulemaking proceeding to be an enormous burden on top of the burden of the FDA proceeding, which is not yet ended. Perhaps EPA should offer its suggestions or recommendations to FDA rather than have a new burdensome rulemaking proceeding begun on the same subject matter as the FDA proceeding. A third required proceeding on lead under the provision of S-2593 for ceramics would be a virtually unprecedented multiple burden on that industry.

S-2637

Section 401(a) of this bill would eliminate the existing CPSC exemption for artists paints under regulations of CPSC by providing that no paint containing more than 0.06 percent lead by dry weight could be sold, would eliminate glazes, enamels and frits containing more than 0.06 lead by dry weight, and stained glass came containing more than 0.1 percent lead by dry weight.

These limitations would amount to virtual bans and affect a variety of artists' materials, already subject to existing CPSC and FDA regulations, resulting in irreparable damage to our nation's cultural heritage and future. Lead is used in these artists' materials because no effective less toxic material has been found.

There is simply no indication that professional artists, who are the most frequent users of these products, are in fact in danger of illness if the lead-containing materials are used according to the safe use instructions on the label.

Section 402 (b) would require either a single or multiple series of EPA rulemaking proceedings to establish higher limits than those fixed by Section 402 with an impossible evidentiary burden to justify the higher limits. There simply is no way that the EPA Administrator could determine that increasing the percentage of allowable lead content for a product category will "promote the protection of human health and the environment." This is in fact a ban on lead above the limits established by Section 402 (a). Unless an exemption for artists' materials is adopted as a new stand-alone part of the bill, this would spell the death knell of certain time-tested professional artists' materials.

Section 404 appears to conflict with or supercede the chronic health warning labels for art materials due to become effective under the 1988 Federal law in November 1990. For the art materials community, this is an additional reason for a stand-alone exemption for artists' materials. Under the 1988 Federal art materials chronic hazard labeling law, new Section 23 of the FHSA, 15 U.S.C. Section 1277, the definition of an art material or art material product is as follows:

"The term 'art material or art material product' shall mean any substance marketed or represented by the producer or repackager as suitable for use in any phase of the creation of any work of visual or graphic art of any medium. The term does not include economic poisons subject to the Federal Insecticide, Fungicide, and Rodenticide Act or drugs, devices, or cosmetics subject to the Federal Food, Drug and Cosmetics Act."

If S-2637 should go forward, the artists' material manufacturers and users request an addition to Section 402 generally as follows:

"Section 402(F) Art Materials

(1) The Term "art materials" is defined as follows:

The term 'art material or art material product' shall mean any substance marketed or represented by the producer or repackager as suitable for use in any phase of the creation of any work of visual or graphic art of any medium. The term does not include economic poisons subject to the Federal Insecticide, Fungicide, and Rodenticide Act or drugs, devices, or cosmetics subject to the Federal Food, Drug and Cosmetics Act.

(2) Art materials shall be exempt from the product category lead limitations of Section 402(a) and the labeling regulations of Section 404."

This exemption has been drafted with a view toward its addition to the language of S-2637. We request that a similar exemption be used with S-2593, in Section 107, if either bill goes forward in the legislative process.

We appreciate the opportunity to present these comments and urge consideration of the above exemption for art materials which are responsible for so minor a contribution to the public exposure to lead and other such ingredients. The art materials industry is continuing to reduce this contribution whenever possible and to protect its consumers and the general public through its certification program of its products.

Deborah M. Fanning, CAE
Executive Vice President
The Art and Craft Materials Institute, Inc.
715 Boylston Street
Boston, MA 02116

July 21, 1990

United States Senate Committee on Enviornment and Public Works:

Dear Committee Members,

I am requesting that this letter be made a statement for the record on legislation being introduced as the (Lead Exposure Reduction Act of 1990, Proposal S.2637). I am requesting that solder used in commerce be exempted from the restriction that it contain no more than .1 percent lead by weight. Solder may impact our electronic, sheet metal, and glass industies in this country to the point that thousands of jobs will be lost and our ability to compete in world markets will be further eroded. Lead in solders not only lowers the melting point of the solder , it significantly changes the flow rate and impacts the conductivity of the resulting joint.

I am as concerned as Messrs. Lieberman and Reid of the toxicity of our household drinking water. The more prudent legislation would be to condemm all housing units containing copper plumbing of any kind if we were really concerned with the amount of lead Americans were ingesting on a regular basis. As a contractor I don't feel that Schedule 40, ABS, or CPVC plumbing are all that great either. A whiff of the Chloroforms and other toxic agents used in the glues to hold those plastic parts in place causes me to wonder what that's doing to my insides?

Yours Truly,

James A Shorten

JAMES A. SHORTEN
President, Bridge Enterprises

July 29, 1990
4508 Jennings
Wichita Falls, Tx 76310

United States Senate
Committee on Environment and Public Works
458 Dirkson Senate Building
Washington, DC 20510

Attention: Paul Chimes

Dear Members of the Committee on Enviornment and Public Works

RE: Lead Exposure Reduction Act of 1990

I would like to request that this letter be made a "Statement for the Record." I am a member of a group deeply affected by the sweeping mandates outlined by this Act in its current form. I commend your attention to the issue of lead in the environment and support the basic intent of the proposed Act. I agree that lead exposure can and should be reduced by limiting widespread and/or high exposure causing uses.

However, there are several aspects of this important topic that have not been addressed in the drafting of the bill, as follows:

1. UNEQUAL IMPACT

Some ofthe lead uses identified by the Act contribute substantially more to lead exposure to humans than others, yet there is no differentiation based on impact among the uses listed. Inspite of the fact that some listed uses cause widespread exposure and some almost nil, most are restricted equally by the Act in it's current form.

2. EXPOSURE FROM STAINED GLASS ARTWORKS IS NIL

Lead used in stained glass came, solder for stained glass construction,and in certain classic glaze and glass colors allows exposures which are insignificant when compared to many others identified in the Act. My use of certain lead containing supplies is vital to my craft and is already governed adequately by existing O.S.H.A. law. My use is not a widespread use leading leading to significant human exposures on a national scale.

I, therefore, request that sections (ii), (vii), (xii) be deleted from Title II, Section 201 of the Act. Furthermore, please keep me informed about all future activities involving the Lead Exposure Reduction Act.

Respectfully submitted,

Barbara Brock

Barbara N. Brock

STATEMENT OF DR. JEFFERY P. PERL, PH.D., CHMM, REP
PRESIDENT
CHICAGO CHEM CONSULTANTS CORPORATION

BEFORE THE
SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL
OVERSIGHT, RESEARCH AND DEVELOPMENT
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

June 27, 1990

Mr. Chairman and members of the committee, my name is Dr. Jeffery P. Perl, President of Chicago Chem Consultants Corp. I am grateful for the opportunity extended me today to discuss your proposed bill S-2637, Entitled "Lead Exposure Reduction Act of 1990". I am a chemical engineer specializing in the reduction and treatment of hazardous wastes. In addition, I am a Certified Hazardous Materials Manager, (CHMM) and a Registered Environmental Professional, (REP).

My interaction with the Lead Industry is through engagement with an environmental law firm in my region who represents specific manufacturers, not the industry at large. My opposition to the proposed legislation is therefore more broad in scope as well as recommendations.

In stating my opposition to the proposed Bill, let me also state that members of my particular profession, ie, the environmental consulting industry, commonly benefit when new environmental regulations are passed. In this case, however, I felt compelled to voice my concern over a matter of even greater importance to the future of the nation, namely the lack of a Unified Environmental, Energy and Natural Resources policy. This bill is a prime example of the dangers of such stand alone legislation.

Often, the requirements of National Defense have been used successfully to argue for exemptions from environmental and safety compliance. These types of exemptions will, no doubt, be required from time to time . Such is not the case in this matter. The United States is facing a new but equally menacing threat. Events in Eastern Europe have overshadowed and blocked from the American publics view, the imminent formation of a new European Economic

Community. Japan meanwhile has continued to practice the use of trade restrictions, protective tariffs, and government encouraged industry monopolies which would be deemed illegal in the United States.

Regarding the proposed legislation, the Resource Conservation and Recovery Act (RCRA), Clean Water Act (CWA), Safe Drinking Water Act (SDWA) and Clean Air Act (CAA) already have empowered EPA to impose strict regulatory limitations on the levels of toxic materials in the air, water and ground. OSHA has continually reduced the allowable exposure limits to lead in the workforce. In addition, the Toxic Substances Control Act (TSCA), the very act for which this amendment is proposed, empowered EPA with the authority to remove from production substances whose very production and use is deemed a threat to human health and safety. EPA has already so acted in the case of PCB and Chloro-Flouro-Carbons (CFCs). On this basis alone the proposed amendment would be superfluous at best.

As a result of legislation already in place, as well as the costs of mining new metal, the recycling rate of lead is already extremely high , greater than 70% by some estimates, and growing. Most of this is due to lead batteries, a source easily controlled by the simple economic value of spent automobile batteries.

The printed circuit board / soldering industry is in the process of examining alternatives to lead in solder, but will require much more time to insure such issues as quality control and reliability. In the meantime, will Congress ban the importation of such electronic devices ? If not, we will simply be exporting pollution to other countries, a policy already disdained by American environmental groups and seriously hampering the American Electronic Industry's ability to compete in an already extremely competitive world market.

Other portions of the bill call for recycling of lead batteries, and further study of the health effects of lead based paint on children, development of inexpensive instruments to test for lead and new standards for air and drinking water and soils. The recycling issue, would more appropriately be addressed in the upcoming legislation on waste minimization. Virtually all of these issues have been addressed in other existing legislation/regulation.

Proposal

National Environmental, Energy, and Natural Resources Policy. The goal of such legislation would be to provide an even approach to the problem of equitable distribution of diminishing federal funds to insure an American preeminence in the these fields as well as our ability to compete technologically in the new , emerging, global economic community. The time has come and passed when we could afford to allow these elements to resolve themselves in separate ways. The rest of the world will not necessarily follow our lead. Examples include our ban 15 years ago on reprocessing spent nuclear fuel which led to an increase in european market share and technical know-how. It also contributed to the present lack of ability to properly deal with nuclear waste materials.

Finally, in order to get the entire environmental cleanup effort moving with greater vigour as well as environmental and cost effectiveness, we need to focus on risk assessment (RA). This will provide the only yardstick by which health and human safety standards may be adequately measured. Without RA, cleanup objectives cannot be set accurately. The cost of unnecessary overcleaning the environment may prove to be a burden the country cannot bear. Since risk assessment has not been mentioned as a factor in this bill, I assume that it has not been considered.

Americans have come now to expect and demand a clean environment in which to live. They also expect, at the same time, to be able to afford to continue to live period.

As I have stated above, the proposed legislation is at best redundant owing to existing regulations already in place. It is at worst restrictive as it has not been based on risk assessment and has ignored the economic impact on the nation at large. Some positive features of the bill, such as the mandated recycling of batteries will be better addressed in upcoming legislation on waste minimization within RCRA. It is for these reasons that I recommend the congress consider instead a comprehensive bill to set National Environmental, Energy and Natural Resources policy. This would coordinate, for the first time in peace, all such policy and its effects on the health and well being of our nations people as well as our ability to compete in the newly emerging world economic community.

Thank you for this opportunity.

(413) 774-4990

Classy Glass
Jean Smolensky

11 Plum Tree Lane
Greenfield, MA 01301

August 3, 1990

Senator Harry Reid
United States Senate
Committee on Environment and Public Works
458 Dirkson Senate Building
Washington,DC 20510

Dear Senator Reid:

I am writting to you regarding Proposal S.2637, the banning of lead in the United States, I wish to call your attention to the use of lead in the stained glass industry and ask that this industry be exempt from compliance with this bill.

The stained glass industry is composed of an estimated 30,000 studios employing an average of 3 people each. New stained glass windows are being made every day in this country, and our rich heritage of old stained glass windows are being restored. Stained glass is a very important industry in this country and lead came is an essential component of our craft. Since the inception of stained glass over a thousand years ago, there has been no substitute found for lead as a material for came. Although pieces of colored glass can be held together with copper foil or zinc came, these are not substitutes for lead came. Their properties and applications are completely different, making them unusable in the vast majority of stained glass construction.

Lead-based solders are also used by the stained glass industry. Recently Lead-free solders have been developed and are used in stained glass, however their melting point is too high to be used on lead came. Lead based paints are also an essential element of stained glass . These paints have been used since the Middle Ages to decorate and enhance stained glass windows. Still alive today, painting on glass is still done much the same way the masters used these materials. These paints are fired on to the surface of the glass and become permanent. Since stained glass is not used to make eating utensils or vessels, there is little or no danger of consumer poisoning through this material.

The elimination of lead from our industry will secure the demise of this much needed craft. Millions o stained glass windows presently in existance in churches, public buildings and homes will someday be i need of repair and unable to be restored. Please help us and vote to exempt stained glass came, lead base solders, and lead based glass paints from inclusion in this bill.
Thank you.

Sincerely,

Jean Smolensky

Date 8-4-90

Honorable Senator Harry M. Reid
Chairman Senate Subcommitee On Toxic Substances
The United States Senate
Washington D. C. 20510

Dear Senator Reid:

RE: Lead Exposure Reduction Act Of 1990

I would like to request that this letter be made a "Statement for the Record". I am a member of a group deeply affected by the sweeping mandates outlined by this Act in its current form. I commend your attention to the issue of lead in the environment and support the basic intent of the proposed Act. I agree that lead exposure can and should be reduced by limiting widespread and/or high exposure causing uses.

However, there are several aspects of this important topic that have not been addressed in the drafting of the bill, as follows:

1. UNEQUAL IMPACT
   Some of the lead uses identified by the Act contribute substantially more to lead exposure to humans than others, yet there is no differentiation based on impact among the uses listed. Inspite of the fact that some listed uses cause widespread exposure and some almost nil, most are restricted equally by the Act in it's current form.

2. EXPOSURE FROM STAINED GLASS ARTWORKS IS NIL
   Lead used in stained glass came, solder for stained glass construction, and in certain classic glaze and glass colors allows exposures which are insignificant when compared to many others identified in the Act. My use of certain lead containing supplies is vital to my craft and is already governed adequately by existing O.S.H.A. law. My use is not a widespread use leading to significant human exposures on a national scale.

I, therefore, request that sections (ii), (viii), (xii) be deleted from Title II, Section 201 of the Act. Furthermore, please keep me informed about all future activities involving the Lead Exposure Reduction Act.

Respectfully submitted,

Rebecca Brenzie / Country Corners Stained Glass
Joseph A Brenzie

Country Corners Stained Glass
HC 55 Box 30
Goetzville, MI 49736
(906) 297-5661

Glass *Forest*

June 21, 1990

Paul Chimes, Publications Director
Senate Committe on Environment & Public Works
458 Dirksen Senate Office Building
Washington, DC 20510

Dear Mr. Chimes:

I would like to have the following statement included in the record for the hearing on Senate Bill S.2637 regarding lead content which is to be held by the Toxic Substances and Environmental Oversight and Research and Development Subcommittee on June 27, 1990.

The fate of a centuries old craft will be resting in your hands when Senate Bill S.2637 comes before the Toxic Substance Subcommittee on June 27th.

The use of lead in the stained glass industry is essential. There is no substitute for lead as a material in came. The demise of the use of lead came will cause millions of windows presently in existence in churches, public buildings and homes to fall into disrepair and eventually extinction, as restoration will be impossible. This will deprive our nation of a great art treasure -- the viewing of which is possible for all people from all walks of life and economic conditions.

The solder used by the stained glass industry must also continue to contain lead, as the lead-free solders do not have a melting point which is sufficiently low to allow its successful use on lead came. The lead-based glass paints, which have been in use since the Middle Ages, are still an essential part of our art form. Once these paints are fired, they are permanently fused to the glass and pose no hazard. They do not create a danger of consumer poisoning, as they are not used in eating or drinking vessels.

Senators, perhaps you are unaware of the nearly 100,000 dedicated craftsmen who are gainfully employed in restoring old windows and creating new ones -- or the thousands of hobbiests in every community, who pursue this art as an avocation. To these people -- and to the population of this nation, who enjoy the beauty created at their hands-- it is essential that the stained glass industry (and specifically stained glass came, lead-based solders and lead-based glass paints) be exempted from compliance with Senate proposal S.2637.

Your help in this matter is urgently needed.

Sincerely,

GLASS FOREST
Barbara R. McCray
Barbara R. McCray

1720 SIXTH STREET • BAY CITY, MI 48708 • (517) ~~893-9681~~ 893-3233

HALF MOON STUDIO
Susanne Pinkham · Taos Mesa · P.O. Box 2712 · Taos, N.M. 87571 · 505-758-1470

July, 20, 1990

Honorable Senator Harry M. Reid
Chairman Senate Subcommittee on Toxic Substances
The United States Senate
Washington, D.C. 20510

Dear Senator Reid:

RE: Lead Exposure Reduction Act of 1990

I would like to request that this letter be made a "Statement for the Record." I am a member of a group deeply affected by the sweeping mandates outlined by this Act in its current form. I commend your attention to the issue of lead in the environment and support the basic intent of the proposed Act. I agree that lead exposure should be reduced by limiting widespread, high exposure uses.

I would bring to your attention several aspects of this important topic that have not been addressed in the drafting of the bill. They are as follows:

1. UNEQUAL IMPACT
   Some of the lead uses identified by the Act contribute substantially more to human lead exposure than others, yet there is no differentiation based on degree of impact among the uses listed. In spite of the fact that some listed uses cause widespread exposure and some cause practically none, most are restricted equally by the Act in its current form.
2. LEAD EXPOSURE FROM STAINED GLASS ARTWORKS IS NIL
   Lead used in stained glass came, solder for stained glass construction, and in certain classic glaze and glass colors allows exposure which are insignificant in comparison to many others mentioned in the Act. My use of certain lead containing supplies is vital to my craft and is already governed by existing O.S.H.A. law. My use is not a widespread one which contributes to significant human exposures on a national scale.

I strongly request the sections (ii), (viii), (xii) be deleted from Title II, Section 201 of the Act. Furthermor, please keep me informed about all future activities involving the Lead Exposure Reduction Act.

Respectfully submitted,

Susanne Pinkham

Susanne Pinkham

STATEMENT OF GARY R. MITCHENER
VICE PRESIDENT AND
GENERAL MANAGER, HALSTAB DIV.
HAMMOND LEAD PRODUCTS, INC.

ON S.2637

BEFORE THE
SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL
OVERSIGHTS, RESEARCH AND DEVELOPMENT
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

June 27, 1990

Mr. Chairman and Members of the committee. I am Gary R. Mitchener, Vice President and General Manager of Halstab Division of Hammond Lead Products, Inc., a producer of heat stabilizers.

It is my belief that S.2637 is unnecessary to safeguard public health, harmful in banning safe and essential uses of lead, jeopardizes lead's emerging role in high tech and environmental applications and imperils many manufacturing jobs across the USA.

That lead can be toxic from overexposure is beyond dispute. Industry and government have responded and regulations now cover every route of human exposure to lead - air, water and food. The results are impressive. Over the past decade, the EPA estimates that lead in air has declined by more than 90% and predicts that human exposure will continue to drop in the years ahead.

Still, lead's public image is abysmal and for two reasons - well publicized cases of children poisoned by eating old lead-based paint chips and the public's almost total ignorance of lead's safe and essential uses.

The following comments relate to a very critical, yet minor use of lead - its use as a heat stabilizer (plastic additive) for PVC (polyvinyl chloride) and even more specifically, its dominant and essential use in wire and cable insulation.

Sec. 402 (a) (3) would ban"plastic additives containing more than 0.06 percent lead by dry weight."

If S. 2637 is passed in its current form, this critical use of lead, for which there are no known substitutes, would be eliminated. Eliminating this use could be detrimental to public safety while having virtually no impact on public exposure to lead.

LEAD STABILIZER USE IN PERSPECTIVE

Of all the uses for lead, its use as a stabilizer for PVC is a minor one. Total lead stabilizer consumption in the USA was estimated by Franklin[1] to be 10,826 tons in the year 1986. Adjusted for an average lead content of 67% this equals 7,250 tons. Total lead production for that same year was reported by The American Metal Market[2] to be 916,900 tons. This use for lead comprises only 0.79% of lead production.

Lead stabilizer use in plastics is not widespread. In fact, it is only used in one type of plastic - PVC. Furthermore, its use in PVC is limited almost exclusively to wire and cable products which comprise only about 6% of all PVC.

> "Lead stabilizers are now used principally in stabilizing plasticized PVC electrical wire insulation..."[3]

LEAD IS CRITICAL IN WIRE AND CABLE

Wire and cable products and applications where they are used are subject to a variety of performance and safety standards or specifications written by some of the following organizations:

UL (Underwriters' Laboratories)
SAE (Society of Automotive Engineers)
NEMA (National Electrical Manufactures Association)
ASTM (American Society for Testing and Materials)
REA (Rural Electrification Administration)
IPCEA (Insulated Power Cable Engineers Assoc.)
US Government Military Specifications

In all of these areas, lead stabilizers serve a major function in PVC's ability to meet these standards.

The following excerpts from references help explain the technical and scientific reasons why lead stabilizers are the exclusive choice for wire and cable products:

The earliest reference goes back to 1938 when Doolittle states in U.S. Patent #2,141,126 that,

> "It will be noted that lead compounds predominate in the above list, and, of the large number of stabilizers tested, lead compounds in general have proved to be the most effective."[4]

From the Encyclopedia of PVC, we have the following comments:

> "Lead salts are among the earliest of PVC stabilizers."
>
> "That they are not ionic and do not conduct electricity accounts for their great use in electrical insulating materials."
>
> "As alluded to in earlier discussion of lead salts, these materials are the preferred electrical grade stabilizers..."[3]

Similar references are found throughout the scientific literature:

> "For PVC cable covering, lead stabilizers have no technological equal."[5]
>
> "Lead stabilizers and their degradation products are insoluble and non-ionizable, and therefore have excellent electrical properties. Leads are used almost exclusively in electrical applications."[6]
>
> "In electrical compounds it is essential that the reaction products of the hydrogen chloride and the stabilizer result in insoluble and non -ionizable end products. Of all the metals known only silver, mercurous mercury and lead form insoluble chlorides. As a result, some form of reactive lead compound is the most suitable practical source of "hydrogen chloride acceptor" for electrical insulation."[7]
>
> "Based on the considerations noted above, it is readily apparent why lead compounds, and more particularly basic lead compounds, have been preeminent as a stabilizer for electrical insulation."[7]

SUBSTITUTES

While the above references touch on the subject of substitutes, the literature is full of many direct references on this subject:

> "...of all of the metallic compounds having recognized value as PVC stabilizers, only the chlorides of lead are unique in conforming to the above-described qualification."[3]

> "Other metallic stabilizers are less suitable since their cations are all conductive and the chlorides formed by these metals are both water -soluble and ionic conductors."[3]

> "By contrast all other stabilizer systems considerably reduce volume resistivity and give higher dielectric loss coefficients."[5]

> "Calcium and zinc chlorides are very soluble, also cadmium and barium chlorides have high solubility."[6]

> "The majority of lead based heat stabilizers have been replaced in applications where substitution is technically and/or economically feasible."[8]

> "Lead PVC heat stabilizers for these applications [electrical cable insulation and jacketing] provide outstanding use characteristics and there currently are no products on the market that can replace these lead based products."[8]

WIRE AND CABLE APPLICATIONS

While the use of lead in PVC is a very minor application for lead, it is an essential use and one that touches virtually everyone in society. Think about the products that we use everyday that involve wire and cable.

Airplanes
Trains
Computers
Home wiring systems
Commercial wiring systems
Lamps and lighting systems
Communication systems
Appliances
Cars and trucks
Power tools
Boats

The list can go on and on especially when you consider the many military and other public applications for wire and cable products. While this bill will ban the use of lead as a stabilizer in all of the above applications, it will also ban the importation of any products containing a lead stabilizer.

IMPACT ON MSW (MUNICIPAL SOLID WASTE)

Lead stabilized wire and cable products have little if any impact on MSW, landfills or incinerators, for the following reasons:

Products containing wire and cable are, for the most part, considered durable, not non-durable.

Therefore, wire and cable, and products containing them, are not routinely disposed of in the MSW stream and most are not even considered in the statistics.

Due to their high scrap value, wire and cable products that are eventually discarded find their way into a recycling stream.

For the small percentage of durables containing wire and/or cable that does find its way into the MSW stream, the impact of the lead contained therein is insignificant.

The amount of lead in the insulation is small, it is encapsulated in the PVC plastic and it does not leach from the insulation in any quantity that is of significance.

> "None of the fifteen lead stabilized PVC samples leached lead above the EPA toxicity limit of 5.0 mg/l."[9]

The same characteristic that is vital to lead's good performance in wire and cable products is, therefore, also an advantage in MSW - its insolubility.

As indicated by other testimony presented here, there is evidence that lead, in general, is not a problem at incinerators whether the subject is air emissions or incinerator ash.

OPPOSE THE S. 2637 BAN ON THE USE OF LEAD STABILIZERS

S. 2637 should be opposed. Passage would eliminate a vital and safe use of lead in today's society. This important use of lead is a use where:

* there is virtually no public exposure.
* the potential industrial exposure is already regulated by the EPA, OSHA and other regulatory agencies.
* science acknowledges that there are no viable substitutes.
* there is virtually no impact on MSW concerns.

6

REFERENCES

1 - Characterization of Products Containing Lead and Cadmium in Municipal Solid Waste in the United States, 1970 to 2000, Franklin Associates Ltd., Prairie Village, KS, Jan 1989

2 - Metal Statistics 1988, American Metal Market, Fairchild Publications, New York, NY.

3 - Encyclopedia of PVC, Vol. 1, Edited by Leonard I. Nass, 1976, Marcel Dekker, Inc. New York, NY.

4 - U.S. Patent #2,141,126; Doolittle, Union Carbide, "process for producing vinyl resin surface coatings", Dec. 20, 1938.

5 - "Lead stabilizers for PVC - cost effective and dependable but now also in hygienic forms", Pb80 Seventh Annual Lead Conference, P.S. Coffin, 1980

6 - Polyvinyl Chloride, Harold A. Sarvetnick, Robert E. Krieger Publishing Co., Huntington, New York, 1977

7 - The Encyclopedia of Basic Materials for Plastics, "Stabilizers for Electrical Insulation", Herbert R. Simonds and James M. Church, Reinhold Publishing Corporation, 1967

8 - "Use and Substitutes Analysis for Lead and Cadmium Products in Municipal Solid Waste", prepared for Kenon Smith, EPA Office of Toxic Substances, EPA Contract No. 68-D8-0116, June 8, 1990

9 - "Lead Stabilizers: Effect of Concentration and Speciation on Their Extractability from PVC Compounds", Sieverson, Morley and Mitchener, SPE RETEC, Atlantic City, NJ, 1987

HOGAN STUDIOS
ROGER W. HOGAN ARTIST/DESIGNER

August 1, 1990

Attention: HARRY REID
UNITED STATES SENATE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
458 Dirkson Senate Building
Washington, D.C. 20510

RE: PROPOSAL S.2637 - THE LEAD EXPOSURE REDUCTION ACT OF 1990

Dear Senator:

I would like to request that this letter be made a **"Statement for the Record"**. I am a member of a group deeply affected by the sweeping mandates outlines by this Act in its current form. I commend your attention to the issue of lead in the environment and support the basic intent of the proposed Act. I agree that lead exposure can and should be reduced by limiting widespread and/or high exposure causing uses.

I have worked in the stained glass industry since my father (who was a noted stained glass artisan in Ireland) immigrated to the United States in 1958. Ours has been a family business dedicated to the design, production and repair of stained glass windows. In this business we use lead in our stained glass came, solder for stained glass construction and in certain classic glaze and glass colors.

There are presently millions of stained glass windows in existence in churches, public buildings and homes that will someday be in need of repair or restoration and if this Act is signed in its original form, these repairs cannot be made.

The amounts used are not significant as regards human exposure and I therefore request that sections (ii), (viii), (xii) be deleted from Title II, Section 201 of the Act.

Sincerely,

ROGER W. HOGAN,
Artist/Designer

WORLDWIDE COMMISSIONS SINCE 1945
STAINED GLASS & FACETED GLASS

2111 MALONE RD. CRESCENT CITY 95531 707/464-7909

SENT BY:LV VALLEY WATER DIST ; 6-28-90 ; 2:12PM ; GEN MGR OFFICE→ 202 775 8531;# 2

Las Vegas
Valley
Water
District

June 28, 1990

The Honorable Harry Reid
United States Senate
SH-324 Hart Senate Office Building
Washington, DC 20510-2803

Dear Senator Reid:

As a member of the Association of Metropolitan Water Agencies (AMWA), I am writing to you to convey my support for testimony delivered by the AMWA at the Senate Environment and Public Works Committee hearing held on June 27, 1990, concerning S. 2637, the Lead Exposure Reduction Act and S. 2593, the Lead Ban Act of 1990.

Of particular concern to me is Section 5 of S. 2637, which states that if within 12 months of enactment of this legislation, the EPA Administrator has not set a standard for lead at the "end-user's tap," a revised national primary drinking regulation for lead shall be promulgated to include an MCL of 5 micrograms per liter at the "end-user's tap." As a water utility, we cannot be placed in a position of being responsible for plumbing and fixtures that we do not own or have any control over.

I look forward to working with you to resolve this concern before lead reduction legislation moves to markup.

Sincerely,

Patricia Mulroy

PATRICIA MULROY
General Manager

EPM/mlt

MAHARANI STAINED GLASS STUDIO
1120 RIVERSIDE DR, HOLLY HILL, FL. 32117
(904) 254 -7519

July 5, 1990

Senator Harry M. Reid
Chairman Senate Subcommittee On Texic Substances
The United States Senate
Washington D.C. 20510

Dear Senator Reid,

RE: Lead Exposure Reduction Act of 1990

I am a stained glass artist and am joined in this industry by approximately 30,000 studios around the country with approxiamtely 3 employees in each studio. To the best of my knowledge most of these studios are educated under the O.S.H.A. law and personally I have MSDS sheets that I use on a regular basis.

Lead used in stained glass came, solder for stained glass construction, and in certain classic glaze and glass colors allows exposures which are insignificant when compared to many other indified in the Act. My use of certain lead containing supplies is vital to my craft. Since stained glass is not used to make eating utensils or vessels, there is little or no danger of consumer poisoning through this material.

The elimination of lead from our industry will destroy our business and will secure the demise of this craft. Millions of stained glass windows presently in existance will fall apart, unable to be restroed.

I therefore, request that sections (ii), (viii), and (xii) be deleted from Title II, Section 201 of the Act. Furthermore, please keep me informed about all future activities involving the Lead Exposure Reduction Act. Thank you.

Yours truly,

Arlene A. Ragan

Arlene A. Ragan
Director

P.S. Please have my letter made a "Statement for the Record".

A.Y. McDonald Mfg. Co.

4800 CHAVENELLE ROAD
P.O. BOX 508
DUBUQUE, IOWA 52004-0508
PHONE 319-583-7311

Telex 43-9020 AYMCD DUOU
Cable AYMCD DUBUQUE, IOWA U.S.A.
FAX 319-588-0720

August 8, 1990

The Senate Environmental
& Public Works Subcommittee
on Toxic Substances, Environmental
Oversight, Research and Development

This letter will serve to document A.Y. McDonald Manufacturing Company's support of the statement by the Plumbing Manufacturers Institute provided to the subcommittee dated June 27, 1990 relative to "The Lead Ban Act of 1990" (S 2593) and "The Lead Exposure Reduction Act of 1990" (S 2637). We as a manufacturer of products for the potable water, plumbing, and water supply systems throughout the United States feel very strongly that the statement provided by the Plumbing Manufacturers Institute is a very positive statement relative to lead control and we throughly support this statement.

Very truly yours,

Joe Daghe

Joe Daghe
Vice President of Engineering

Dear Senator

I am writting to you regarding Proposal S.2637, the banning of lead in the United States, I wish to call your attention to the use of lead in the stained glass industry and ask that this industry be exempt from compliance with this bill.

The stained glass industry is composed of an estimated 30,000 studios employing an average of 3 people each. New stained glass windows are being made every day in this country, and our rich heritage of old stained glass windows are being restored. Stained glass is a very important industry in this country and lead came is an essential component of our craft. Since the inception of stained glass over a thousand years ago, there has been no substitute found for lead as a material for came. Although pieces of colored glass can be held together with copper foil or zinc came, these are not substitutes for lead came. Their properties and applications are completely different, making them unusable in the vast majority of stained glass construction.

Lead-based solders are also used by the stained glass industry. Recently Lead-free solders have been developed and are used in stained glass, however their melting point is too high to be used on lead came. Lead based paints are also an essential element of stained glass . These paints have been used since the Middle Ages to decorate and enhance stained glass windows. Still alive today, painting on glass is still done much the same way the masters used these materials. These paints are fired on to the surface of the glass and become permanent. Since stained glass is not used to make eating utensils or vessels, there is little or no danger of consumer poisoning through this material.

The elimination of lead from our industry will secure the demise of this much needed craft. Millions of stained glass windows presently in existance in churches, public buildings and homes will someday be in need of repair and unable to be restored. Please help us and vote to exempt stained glass came, lead based solders, and lead based glass paints from inclusion in this bill.
Thank you.

Sincerely,

Pat Miry

napim NATIONAL ASSOCIATION OF PRINTING INK MANUFACTURERS, INC.
47 Halstead Avenue, Harrison, New York 10528 / 914-835-5650

JAMES E. RENSON, Executive Director

REGULAR MEMBERS:

Alden & Ott Printing Inks
American Inks & Coatings
American Inks & Supplies
American Offset Printing Ink
BASF Corp.,Coatings & Colorants Div.
Beacon Printing Ink
Bomark
Borden
Bowers Ink
Braden Sutphin Ink
Cabrun Ink Products
Cardinal Colors
Carolina Inks
Cavanagh
Central Ink & Chemical
Century Color
Cleveland Printing Ink
Color Converting Industries
Colorcon
Colorcraft Quality Litho Inks
Continental Printing Inks
Croda Inks
Custom Printing Inks
A. J. Daw Printing Ink
Eastek Inks
F & F Printing Ink
Rudolph Faust
Flexo-Graphic Industries
Flint Ink
Gans Ink & Supply
Grand Rapids Printing Ink
Graphic Fine Color
Graphic Sciences
Hostmann Steinberg Printing Inks
J. M. Huber
Ink Makers
Ink Specialties
Ink Systems
Inx International
R. A. Kerley Ink Engineers
Kramer Ink
Lemaster Litho Supply
LioChem, Inc.
Mallard Ink
Marathon Ink
Miller-Cooper Ink
Mix & Match
Monarch Color
Morrison Ink
National Printing Ink
New England Printing Ink
North American Printing Ink
Northern Printing Ink
Peacock Colors
Polytex Environmental Ink
Press Color
Printers Ink & Supply
Prism Printing Ink
Production Color
R. W. Rexford
SICPA Ink Systems
Signal Printing Ink
Sinclair & Valentine
Southwest Printing Ink
SPINKS/Dryco
Sun Chemical
Superior Printing Ink
Thomas Printing Inks
Three Dimensional Chemical
Tone-Pack Inks
TW Graphics Group
United States Printing Ink
Van Son Holland Ink Corp. Of America
Western Printing Ink

June 27, 1990

Ms. Sheila Humke
Professional Staff Member
Subcommittee on Toxic Substances, Environmental
Oversight, Research & Development
SD 458 Dirksen Senate Office Building
Washington, DC 20510-6175

Re: S.2593

Dear Ms. Humke:

We respectfully request that this statement be made a part of the hearing record of the hearing held by the Subcommittee on June 27, 1990 on S. 2593 dealing with lead contamination. This statement is made on behalf of the National Association of Printing Ink Manufacturers, Inc. representing the U.S. printing ink industry.

NAPIM

NAPIM is a national trade association representing small, medium and large printing ink manufacturers in the U.S. Its 87 members account for about 90% of total U.S. sales of printing inks which amounted to approximately $2.5 billion in 1989.

USE OF LEAD-BEARING MATERIALS

NAPIM acknowledges that inorganic lead chromate yellows and molybdate oranges which contain lead in their molecules are still used today in the printing of some packaging materials. This is usually a matter of choice and responds to the printer's need to meet the requirements of the package designer. Lead-bearing pigments are selected not only for their economy, but also for their opacity which is not achievable with organic pigments which do not contain lead in their molecular structure. Use of these colorants in packaging will be banned by model legislation proposed by the Coalition of Northeastern Governors (CONEG). They have already been banned by the CPSC under 16 CFR 1303 for use on children's books, toys or similar children's articles and would be eliminated by any rule prohibiting the use of materials containing more than 600 parts per million (ppm) of lead.

NAPIM does not have exact data on the consumption of lead-bearing pigments used in printing ink today, but believes that the usage of lead chromate yellow and molybdate orange pigments in packaging ink in 1989 was approximately 6.3 million pounds. This level of usage would contribute a maximum lead burden of about 1,900 tons to the total U.S. municipal waste stream, or less than 1% of the total lead burden in municipal waste today. This level will be sharply reduced as substitutes for lead-bearing pigments are increasingly used by package converters and as legislation such as CONEG's is adopted.

THE CONTRIBUTION OF LEAD CONTAMINANTS IN PACKAGING TO THE LEAD BURDEN IN MUNICIPAL SOLID WASTE IS INSIGNIFICANT

There seems to be an erroneous belief that trace lead contaminants in printed matter, especially packaging, is a major contributor to the lead burden in municipal solid waste. Since the trace content of lead at levels which might be contributed by inks in printed matter pose no immediate health hazards, it seems evident that the pressure to reduce trace lead contamination in printed matter must come from municipal waste concerns.

To put this issue into proper perspective, NAPIM would like to demonstrate that the lead burden resulting from lead contamination in packaging is insignificant. Trace metal contamination of lead in printing inks seldom exceeds 600 parts per million and is more likely to be substantially lower. However, even if we assume that all printing inks contain 600 per million of lead (which is considerably more than is actually the case) the total burden contributed by trace metal contaminants in all printed matter would be less than 0.25% of the total lead burden in municipal waste in the U.S. today. This conclusion is drawn by comparing the calculated volume of lead with the total lead burden reported by Franklin Associates in its study dated January, 1988 entitled "The Characterization of Products Containing Lead and Cadmium in Municipal Solid Waste in the United States."

By the same token, trace metal contaminants in packaging inks alone contribute no more than 0.06% of the lead burden in municipal waste today. While NAPIM endorses Senator Bradley's objective of reducing the presence of lead in municipal solid waste, we suggest that S.2593 is directed towards reducing a portion of the municipal waste burden which, at a level of less than 0.1%, is already negligible and which as we will show later is probably already irreducible.

In order to provide more background on the subject, we recommend two recent articles from the trade press. One of these is "Heavy Metal Paranoia" which appeared in the November, 1989 issue of the **American Ink Maker** and the other is "A Heavy Metal Q&A" which appeared in the April, 1990 issue of **Converting** magazine. Copies of these two articles are enclosed. The first article is designed to put into perspective the relationship of heavy metals in printing ink to municipal waste issues; the second provides answers to specific questions about heavy metals in inks.

SOURCES OF LEAD CONTAMINANTS

Virtually all naturally occurring materials including minerals and vegetable-derived materials contain trace levels of lead in excess of 1 ppm. In fact, the threshold level of lead contamination throughout the environment is believed to be at least 1 ppm and could be significantly higher in naturally occurring minerals which are used as raw material sources in industry today.

For example, the primary white pigment used in printing ink is titanium dioxide (TiO_2). A typical analysis for trace lead contamination in TiO_2 available today would show around 90 ppm and this is a commercially irreducible level with today's technology. Thus, taking this commonly used ink raw material as an example, limiting lead to 1 ppm would make this important pigment unavailable for use in packaging. Since TiO_2 is the only commercially viable opaque white pigment available today, white inks and coatings which are commonly used in packaging products would be eliminated, thus causing severe disruption and major economic loss to the packaging industry.

Not only do inorganic (mineral) pigments such as TiO_2 and other mineral pigments contain trace levels of lead contamination, most organic pigments used in printing ink today may contain from 1 ppm to at least 25 ppm or more of lead contamination. These levels result in unavoidable contamination from a variety of sources including naturally occurring substances in the basic raw materials, from water used in their manufacture, from water pipe soldered joints in manufacturing equipment and the like. In fact, NAPIM knows of no pigment used in printing ink today which would contain less than one part per million of lead. Quite the contrary, it is almost certain that any pigment or other raw material used in printing ink could contain more than one ppm of lead.

In order to stress the fact that almost every industrial product and most naturally-occurring materials contain at least one ppm of lead, NAPIM wishes to call attention to the limit set by the U.S. Food & Drug Administration for lead contamination in pigments used as color additives for foods, drugs and cosmetics. These are set forth in 21 CFR Parts 73 and 81. Under the FDA regulations, the maximum lead concentration allowed by FDA for such pigments is 10 parts per million.

Please note that the FDA acceptable level for lead contamination is ten times the end-point level proposed in S.2593 for industrial products such as printing ink used in packaging which should not be expected to be as pure as food, drugs and cosmetic additives.

ONE PART PER MILLION LIMITATION IS NOT FEASIBLE

NAPIM submits that the setting of excessively low limitations on lead contamination in today's commercial environment is not feasible and further notes that a maximum limit of 1 ppm is impossible. As stated earlier, most commercially available pigments used in printing inks contain up to at least 25 ppm of lead and many may contain even higher levels. To reduce lead contamination to levels approaching 1 ppm would require pigment and ink manufacturers to find raw materials which have lead levels below those which are found in the environment. In fact, reduction of lead contamination to guaranteed levels below 50 ppm would require the evaluation of each intermediate chemical used in the manufacture of pigments and other raw materials and would contribute substantially to cost.

In draft model legislation designed to reduce presence of lead and certain other heavy metals in the municipal waste stream, the Source Reduction Council of the Coalition of Northeastern Governor's (CONEG) has given careful consideration to trace metal contaminants below which no unacceptable burden of heavy metals would be contributed by packaging materials reaching the municipal waste stream.

The Council's judgement was reached after careful consideration of inputs provided by industry experts in the printing, converting, and product packaging industry including senior technical personnel from some of the leading companies in these fields. It should also be noted that representatives from major environmental groups also participated in the Council's deliberations and presented testimony in written and oral form to the Council. (NAPIM's comments to the Council are attached herewith). NAPIM is concerned that this carefully reached decision which is being used as a basis for responsible legislation proposed by CONEG seems to have been overlooked in S.2593.

REASONABLE CONTAMINATION LIMITS

NAPIM strongly believes that responsible legislation should set limits which are reasonable and achievable without serious disruption of package converting or the consumer packaging industries while adequately protecting the environment and public health. In view of the known levels of trace lead contamination in pigments and other printing ink raw materials, NAPIM suggests that an eventual limit of 100 ppm of lead in printing ink or other components of packaging would be achievable in the future. However, such levels will not be achievable without cost.

Pigment suppliers have reported to NAPIM that control of metal contaminants to guarantee lead contamination levels of 100 ppm or less will raise the cost of pigment raw materials approximately 10% to 17%. Similarly, ink companies have reported that certification testing to verify such levels in printing ink products will substantially increase the cost of printing ink. In large batches this could easily be $.25 per pound for inks now costing somewhere around $2.00 and in small batches necessary testing could easily double and even triple current ink costs.

For purposes of this statement NAPIM has not made an indepth cost analysis of the impact of achieving levels below 100 ppm, but estimates made by major raw material supplier indicate that the cost to the printing ink industry would be upwards of $50 million or more annually. It is inevitable that these higher costs will eventually be passed along to the ultimate consumer.

CERTIFICATION

The CONEG model legislation includes language to require certification of the required lead contamination levels. We anticipate that the final language in S.2593 will also require some form of assurance that the required limits are met. NAPIM submits that the law should permit the use of generally accepted statistical sampling on a random basis to satisfy the certification requirements.

Test methods for identification of lead are well established and reasonably reliable at levels above 50 ppm provided there is careful adherence to scientific protocols. Without going into detail, typical test methods would include atomic absorption analysis. This method requires sophisticated analytical instruments which are not generally available within the printing ink industry, nor are they normally found in laboratories of packaging converters or package users themselves. Therefore, as we pointed out to CONEG, it is evident that testing would have to be accomplished in outside commercial analytical laboratories.

The setting of unreasonably low levels and the need for ongoing testing of every batch of ink and pigment would add very substantial, prohibitive costs to printing inks for packaging. Moreover, this would cause severe dislocations in the entire packaging converting industries where production schedules are almost always very short and frequently require delivery of ink within a few days or often within a few hours. Based on existing testing schedules of the available commercial laboratories, the need to test would add a minimum of three to five days to delivery schedules and could cause severe disruption to the entire packaging converting industry.

The only reasonable alternative would be to permit statistical sampling techniques as the basis for certification, a procedure which is already being used in the printing ink industry today to assure printer customers of low trace metal contamination in the inks they purchase.

BIO-AVAILABILITY

At the risk of introducing an excessively technical consideration, NAPIM suggests that reasonable legislation should consider the solubility, or bio-availability, of lead which finds its way into municipal solid waste; not the total weight of the lead itself. For example, white lead, the pigment used a generation ago in white paints and the one which is causing so much concern in low income housing today, is completely soluble and thus highly toxic. On the other hand, barium sulfate, another white pigment, is completely insoluble and is routinely used without risk as an internal X-ray contrast medium for humans.

Congress, in the drafting of its RCRA legislation, and EPA in its drafting of the implementing regulations, recognized this distinction. In fact, in the regulations specifying whether or not a waste is toxic by virtue of the metal it contains, the measurement is made by the process of leaching to determine how much of the contained metal will actually leach into the environment and how much will remain as insoluble components. Since much of the lead in municipal waste is insoluble, RCPA limits lead in the leachate to 5 parts per million in the E.P. toxicity test used to determine whether a waste is hazardous. Thus, EPA determines hazardousness in terms of the amount of lead which is leached out by hydrochloric acid. This in turn evaluates the amount of lead which will leach into the environment either as a result of exposure to acid rain or other source of water and thus eventually find its way into the groundwater supply. NAPIM notes that under EPA rules, the determining factor with respect to hazard in the waste stream is the presence of soluble lead materials, not necessarily total lead.

SUMMARY

NAPIM recognizes that it is reasonable to design legislation which will protect the public health, regulate industrial processes and establish targets for future toxics reduction. However, we must stress that a one part per million limit in lead contamination is not scientifically feasible. Present technology does not permit formulation of printing inks - or other industrial products - with minimal levels of lead approaching one ppm. In fact, one ppm of lead is to be found not only in industrial products but also in food, pharmaceuticals, or cosmetics where exposure to humans is intended and in most naturally occurring products. It is one-fifth the level allowed under RCRA in the E.P. toxicity limits, one tenth the level allowed by the FDA and one one-hundredth of the safe levels proposed in CONEG legislation.

We believe that legislation with which no compliance can be reasonably anticipated will create havoc. It may even discourage responsible efforts to accomplish desired objectives in the future.

We very much appreciate this opportunity to comment on S.2593. We would be delighted to meet with you at any convenient time to answer any questions you may have. If we can provide you with further background, we would be pleased to do so.

Sincerely,

James E. Renson
Executive Director

jjr
enc.

STATEMENT OF THE NATIONAL AUTOMOTIVE RADIATOR SERVICE ASSOCIATION

ON S. 2637

BEFORE THE SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT, RESEARCH AND DEVELOPMENT
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

The National Automotive Radiator Service Association ("NARSA") is a non-profit organization whose members are principally engaged in operating an automotive radiator service business, or are otherwise engaged in the automotive cooling system industry. There are at present an estimated 10,000 radiator shops in the United States. The radiator and automotive cooling system industry employs approximately 50,000 people in manufacturing and 25,000 in service and repair.

NARSA is in agreement with the aims of S. 2637 ("The Lead Exposure Reduction Act of 1990"), but feels that the proposed legislation is overly broad and misses its intended focus - to reduce the exposure of individuals, and especially children, to lead. Although the aims of the bill are laudable, the restrictions imposed by S. 2637 are greater than necessary. Representatives of the ceramics industry, the electronics industry, the lead pigments industry and the stained glass industry, for instance, have stated that if the bill becomes law in its present form, their industries will be crippled or destroyed - all without any showing that their products have substantially exposed consumers to lead.

The radiator service industry is another industry that would be severely and unfairly impacted by the passage of S.2637 in its present form. Radiator shops in the U.S. use an estimated 100 pounds of lead solder a month per shop, and it is estimated that nationally the radiator industry uses 24.4 million pounds of solder in the manufacture and repair of radiators. This solder averages 80 percent lead. Thus, 16 million pounds of lead are used in manufacturing and 3.5 million pounds are used in the repair and servicing of radiators. Lead consumption in the radiator industry has declined over the past five years, in large part due to the advent of the plastic/aluminum radiator - in 1985, for instance, solder consumption was 40 million pounds of lead. NARSA has made significant efforts to inform and educate the radiator industry about the hazards of occupational exposure to lead. The incidence of lead exposure in the industry above OSHA's Permissible Exposure Level is low.

Section 402 (a)(2) of S.2637, which prohibits the use of lead solder containing more than 0.1 percent lead by dry weight, is unnecessary to accomplish the purposes of the bill. Representatives from the medical community testified on June 27, 1990 that the greatest danger of lead exposure comes from contaminated food, contaminated water, and from lead based paint. These medical experts further agreed that the greatest danger of exposure to lead comes not from new sources of lead, but from existing sources. Food becomes contaminated because of lead based solder used in canning. Drinking water becomes contaminated because of lead based plumbing fixtures and the use of plumbing solder containing lead. Exposure to lead based paint today comes from paint that is usually over forty years old. These existing sources of lead are all areas of legitimate concern.

Although lead can be hazardous where carelessly used, it is also highly beneficial where its use is controlled and where there is little or no danger of public exposure to lead. The use of solder containing lead in the repair and servicing of radiators is just one such beneficial use of lead that does not result in exposing the public. The use of lead solder in the repair of radiators is necessary because of the malleability of lead and because of its ability to withstand frequent exposure to high heat without becoming brittle and cracking when cooled. Radiators are ultimately either repaired and recycled or processed as scrap, frequently along with the vehicle in which they are installed. Neither in the process of repair or scrapping of radiators is there any danger of public exposure to lead.

A restriction on the use of solder containing lead in household plumbing and in canning makes sense because of the great opportunity for lead exposure. But a blanket restriction on the use of all solder containing more than 0.1 percent lead bears no rational relation to the purpose of the bill, and will not significantly decrease the general public's exposure to lead. S. 2637 should be amended to only prohibit the use of solder containing more than 0.1 percent lead as plumbing solder or as canning solder. An all out ban of lead solder is unnecessary.

NARSA supports the statements made by the representatives of the U.S. EPA at the June 27, 1990 hearing - there is sufficient legislative authority in existence under the Toxic Substances Control Act ("TSCA") to accomplish the goals of S. 2637 without the imposition of new legislation. U.S. EPA is already reviewing existing lead uses under TSCA, and the implementation of lead reduction proposals through U.S.EPA rulemaking authority would be more expeditious than new legislation. There already exists jurisdiction to control lead exposure within U.S.EPA, FDA, HUD, OSHA, and the Consumer Product Safety Commission. Through the efforts of these agencies, U.S.EPA estimates that public exposure to lead in food and water has decreased by 84% since 1978.

There are several provisions of S. 2637, however, that NARSA finds acceptable:

- Enhanced blood lead screening programs for children and the establishment of emergency programs for children with unusually high levels of blood lead;
- The development of an inventory of safe lead uses;

- The requirement that U.S.EPA be informed of new uses of lead that would pose a threat of significant human exposure;

NARSA is in agreement with the statement made by Senator Bill Bradley at the June 27, 1990 hearing that there are still many things about lead that we do not know. More studies and tests are necessary. NARSA also agrees with Senator Bradley's statement that a large part of the lead exposure problem comes from lack of public awareness. Increasing public awareness should be a first priority. NARSA believes the following steps should be taken concerning S. 2637:

- No action should be taken on the bill at least until U.S.EPA releases its study of lead in drinking water in December 1990;
- The bill should be amended to concentrate on eliminating existing sources of lead, especially in paints and plumbing, rather than banning new uses of lead;
- Special attention should be paid to removing existing sources of lead in schools;
- The bill should be amended to only prohibit the use of solder containing more than 0.1 percent lead as plumbing solder or as canning solder, rather than imposing a ban on solder containing more than 0.1 percent lead.

NARSA thanks the Subcommittee on Toxic Substances, Environmental Oversight, Research and Development for the opportunity to submit this statement for the record. NARSA hopes that the information and opinions expressed herein will be useful to the Subcommittee, and to the Committee on the Environment and Public Works, in its deliberations. NARSA does not contend that lead is not a hazardous material, it is: but so are many other substances without which our society could not function. Lead has many important and beneficial uses that range from batteries to ballast for submarines to solder for computers and radiators. The question should not be whether lead should be banned, for there are many important industrial uses of lead where no other substance is an acceptable substitute. The question instead should be how we can reduce public exposure to lead without devastating large segments of the U.S. economy. If there are any questions that the Subcommittee has on NARSA's position on S. 2637, NARSA would be glad to answer them.

DM: Leadstat

Statement
by
Plumbing Manufacturers Institute

on

"The Lead Ban Act of 1990" (S 2593)
and
"The Lead Exposure Reduction Act of 1990" (S 2637)

To The Hearing Record
of

June 27, 1990

Before The

Senate Environment and Public Works Committee
Toxic Substances, Environmental Oversight,
Research and Development Subcommittee

The Plumbing Manufacturers Institute (PMI), which is the national trade association for companies that produce plumbing fittings and fixtures, appreciates the opportunity to comment on the "Lead Ban Act of 1990" (S 2593) and the "Lead Exposure Reduction Act of 1990" (S 2637). Recognizing the importance of public health, PMI supports federal regulations that reduce the health hazards from human exposure to lead in drinking water.

This statement deals specifically with lead that may be contained in the two major groups of products manufactured by the plumbing industry. First, it addresses plumbing fittings, such as faucets, which are used to convey potable water. Second, it covers plumbing fixtures, such as toilets and urinals, which are vitreous china products that are coated with glazes, frits and enamels.

There have been two major developments in the last three years with respect to evaluating the levels of lead and other contaminants in drinking water. The first is the development of a program by a consortium of private organizations, headed by the National Sanitation Foundation (NSF) of Ann Arbor, Michigan, under a contract with the United States Environmental Protection Agency. This program evaluated the health effects of contaminants leached into potable water by these products. The designation of the performance standard developed under this contract is the American National Standards Institute (ANSI)/NSF Standard 61 on indirect additives to drinking water.

The second major development is the enormous amount of testing of plumbing fittings done by the industry during the past three years to determine the leach characteristics from the materials used in these products. One of the primary reasons why the plumbing industry conducted this extensive testing program was to insure that the leach levels from its products as indirect additives to drinking water were not contributing to public health hazards. From analysis of our own data and other data, it appears that plumbing fittings do not pose a lead-related public health risk.

The ANSI/NSF Standard 61 has been developed through a consensus process in which a wide cross section of industry, regulators, health administrators, EPA officials and scientists have participated. Products and materials have been evaluated against strict health effects criteria. In the case of lead, the maximum allowable level (MAL) under Standard 61 is tied to the National Primary Drinking Water Standards (NPDWS). The MAL is automatically revised when the NPDWS are revised. The MAL is defined as one-tenth the MCL. Consequently, plumbing fittings will be evaluated under Standard 61 against criteria ten times more stringent than the NPDWS.

The NPDWS and ANSI/NSF Standard 61 provide the best means for protecting public health from indirect additives like lead to drinking water. They do so based on product performance, not on prescriptive requirements.

PMI would like to comment on the specific provisions in S 2593 that require the Environmental Protection Agency to evaluate products. These provisions duplicate existing authority already granted to EPA under the Safe Drinking Water Act. They are also the same functions that the agency has delegated to the Standard 61 process, since it apparently felt that it had neither the resources nor the expertise to continue its own program. Participation and guidance by EPA officials has been a key ingredient in the development of Standard 61. Therefore, the active involvement by the agency should not be impeded or duplicated by new statutory requirements.

PMI would also like to address several provisions in S 2637 that are of importance to the plumbing industry. First, because of the substantial reporting and labeling requirements, the legislation seems to suggest that the mere presence of lead, not the exposure to lead, is harmful. PMI believes that the intent of the legislation should be to control harmful exposure to lead. The sections of the legislation dealing with standards for blood analysis and exposure studies provide useful guidance in dealing with lead exposure problems.

Secondly, the prescriptive requirement that the lead content in plumbing fittings be limited to "2 percent lead by dry weight", could be counter productive to the intent of reducing exposure to lead. The major problem in dealing with specific criteria is that the prescription typically ignores important variables. Because of the extensive testing that industry has done to determine leaching characteristics from plumbing products, we can state that it is possible to obtain higher lead leach rates from a fitting with a 2 percent lead content than from one with a much higher lead content. In PMI's judgment, it is imperative that EPA's regulatory requirements be based on performance criteria, such as those afforded through the NPDWS and NSF Standard 61, rather than design or content criteria.

There will certainly be debate on the issue of plumbing fittings' contribution to lead contamination. To legislate specific, prescriptive criteria, Congress will become involved in the issue of, "what is good science?" from the standpoint of evaluating data and materials on the health effects of lead. PMI contends that that the most reliable way to protect the public health from harmful lead exposure is to mandate performance criteria such as those in place in NPDWS and NSF Standard 61.

It is also most important to recognize that lead in drinking water is not an issue for the Toxic Substances Control Act. The most appropriate regulatory mechanism regarding lead in plumbing products is the Safe Water Drinking Act. This federal statute should continue to be the only controlling policy for the Environmental Protection Agency to follow in the development of regulations on lead in drinking water.

Brass alloys containing lead have been used in the plumbing industry for well over fifty years to make a wide variety of plumbing fittings. Industry has also sought alternative ways to manufacture its products with alloys containing little or no lead. However, there are potential economic consequences from any mandated product transition which could put some companies out of business, cause significant job losses, and contribute to rising building costs. Nonetheless, PMI recognizes that these consequences are not as important as the legitimate need to protect public health.

PMI and the plumbing industry fully understand that the American public needs complete assurance that plumbing fittings do not pose any potential health hazard. For its part, industry needs a performance standard on which to base its production of plumbing fittings in order to provide this public assurance. A performance standard should be adopted by the Environmental Protection Agency because it not only gives industry the widest set of options to employ in manufacturing its products, but also is consistent with the critical need to protect public health.

PMI believes that the regulatory structure set forth in the National Primary Drinking Water Standard and the National Sanitation Foundation Standard 61 already accomplishes these preceeding goals to protect public health and give industry a performance standard. The purpose of S 2593 and S 2637 or any new legislation should be to support these programs, which are now in place and functioning effectively to protect public health.

The "Lead Exposure Reduction Act of 1990" (S 2637) also addresses the need to lower the permissible level of lead used in glazes, frits and enamels that coat ceramicware products. PMI commends the sponsors of this bill for their efforts to restrict the amount of lead in these coatings to a maximum amount of 0.06% by dry weight in Section 402 of the legislation.

The problem with this section of the legislation is that it should cover only those materials used in the coatings of ceramic products such a cups, glasses, plates, utensils or other items that are used in human consumption of food and liquids. However, the provision was not explicitly drafted to regulate only these products. Thus, it appears that this section of the bill would apply to all ceramicware products, whether there is any potential risk to human health from exposure to them or through their use.

PMI is concerned that unless there are references to specific ceramicware products, that toilets, urinals, tubs, sinks and other vitreous china used in commercial, residential and institutional plumbing would be inadvertently included in the scope of the bill. This problem could also be addressed in the legislation by identifying those products that were not intended to be covered. This is an important issue to the plumbing industry because its products pose no adverse health problem since they are not used by the public for the purposes of consuming food or liquids.

The issue of imports also needs to be clarified in the legislation. There is no indication in Section 402 of the bill whether the authors intended to cover products manufactured overseas, and later imported into this country. The text in the bill states that "no person may manufacture, process or distribute in commerce" products that have lead that exceeds the specific levels set forth in the legislation. This provision indicates that only domestic products were intended to be covered by the legislation.

There should be some provision in the bill for imports, since foreign manufacturers may use soil or other materials that contain traces of lead in their production of vitreous china or in the glazes, frits or enamels that coat these products. Imports of ceramicware are not a problem for the plumbing industry as PMI's survey of its members revealed that only one company imported products coated with a minimal trace of lead in their refired frits. These frits contained less than 0.06% lead by dry weight.

PMI reiterates its commitment to work with both Congress and the Environmental Protection Agency to develop legislation and regulations related to lead in drinking water so that the final policy reflects the best available scientific data and still insures the protection of public health.

Date 7-11-90

Honorable Senator Harry M. Reid
Chairman Senate Subcommittee On Toxic Substances
The United States Senate
Washington D. C. 20510

Dear Senator Reid:

RE: Lead Exposure Reduction Act Of 1990

I am a member of a group deeply affected by the sweeping mandates outlined by this Act in its current form. I commend your attention to the issue of lead in the environment and support the basic intent of the proposed Act. I agree that lead exposure can and should be reduced by limiting widespread and/or high exposure causing uses.

However, there are several aspects of this important topic that have not been addressed in the drafting of the bill, as follows:

1. UNEQUAL IMPACT
   Some of the lead uses identified by the Act contribute substantially more to lead exposure to humans than others, yet there is no differentiation based on impact among the uses listed. Inspite of the fact that some listed uses cause widespread exposure and some almost nil, most are restricted equally by the Act in its current form.

2. EXPOSURE FROM STAINED GLASS ARTWORK IS NIL.
   Lead used in stained glass came, solder for stained glass construction, and in certain classic glaze and glass colors allows exposures which are insignificant when compared to many others identified in the Act. My use of certain lead containing supplies is vital to my craft and is already governed adequately by existing O.S.H.A. law. My use is not a widespread use leading to significant human exposures on a national scale.

I, therefore, request that sections (ii), (viii), and (xii) be deleted from Title II, Section 201 of the Act. Furthermore, please keep me informed about all future activities involving the Lead Exposure Reduction Act.

Respectfully submitted,
Jackie Nichols
Window Shopping Stained Glass
107 Kings Hwy
Shreveport, LA 71104

WINDSEYE
3647 W. Hillsborough Avenue
Tampa, FL 33614
813/870-6109 813/875-9956

8/3/90

Dear Senator Bob Graham:

I am writing to you regarding Proposal S.2637, the banning of lead in the United States. I wish to call your attention to the use of lead in the stained glass industry and ask that this industry be exempt from compliance with this bill.

The stained glass industry is composed of an estimated 30,000 studios employing an average of 3 people each. New stained glass windows are being made every day in this country, and our rich heritage of old stained glass windows are being restored. Stained glass is a very important industry in this country and lead came is an essential component of our craft. Since the inception of stained glass over a thousand years ago, there has been no adequate substitute found for lead as material for came. Although pieces of colored glass can be held together with copper foil or zinc came, these are not substitutes for lead came. Their properties and applications are completely different, making them unusable in the vast majority of stained glass construction.

Lead based solders are also used by the stained glass industry. Recently lead-free solders have been developed and are used in stained glass, however their melting points are too high to be used on lead came. Lead based paints are also an essential element of stained glass. These paints have been used since the Middle Ages to decorate and enhance stained glass windows. Still alive today, painting on glass is still done much the same way masters used these materials. These paints are fired on to the surface of the glass and become permanent. Since stained glass is not used to make eating utensils or vessels, there is little or no danger of consumer poisoning though this material.

The elimination of lead from our industry will secure the demise of this much needed craft. Millions of stained glass windows presently in existence in churches, public buildings, and homes will someday be in need of repair and unable to be restored. Please help us and vote to exempt stained glass came, lead based solders, and lead based glass paints from inclusion in this bill.

My company has been in business in Florida for 12 years. With an anually payroll of over $250,000 and with income taxes paid in of almost $100,000 per year, we contribute significantly to the health and welfare of many people. The lead exposure that our products present is minimal and if the category of stained glass is not exempted we will no longer be in business. The economic loss to us, our employees, the state, and the federal government will be substantive, while the gain in minimizing exposure from our work will be minimal.

Sincerely,

Douglas Johnson

Douglas Johnson

II

101st CONGRESS
2d Session

S. 2593

To reduce the amount of lead contamination in the environment.

IN THE SENATE OF THE UNITED STATES

May 8 (legislative day, April 8), 1990

Mr. **Bradley** (for himself, Mr. **Reid**, and Mr. **Lieberman**) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To reduce the amount of lead contamination in the environment.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Lead Ban Act of 1990".

SEC. 2. REPORT.

Prior to the expiration of the 90-day period following the date of the enactment of this Act, the Administrator of the Environmental Protection Agency and the Chairman of the Consumer Product Safety Commission shall report to the Congress with respect to the administration of the provisions of part F of the Safe Drinking Water Act, with particular emphasis on the administration of the provisions of section 1462 of such Act relating to enforcement.

TITLE I—REDUCTION OF LEAD IN THE ENVIRONMENT

SEC. 101. REGULATIONS.

Prior to the expiration of the 180-day period following the date of the enactment of this Act, the Administrator of the Environmental Protection Agency (hereinafter in this Act referred to as the "Administrator"), shall issue such regulations as may be necessary to require a system for identifying lead solders sufficient to prevent the inadvertent or unlawful use of lead solders by individuals engaged in the installation or repair of any public water system or any plumbing in a residential or nonresidential facility providing water for human consumption which is connected to a public water system.

SEC. 102. STUDY.

(a) Within the 180-day period following the date of the enactment of this Act, the Administrator shall conduct a study for the purpose of determining the extent to which the use of lead alloys in the manufacture of faucets and fittings can be reduced or eliminated.

(b) The Administrator shall report the results of such study, together with his recommendations, to the Congress within 30 days following the completion of such study.

(c)(1) If, on the basis of such study, the Administrator determines that the amount of lead alloy which can be lawfully used in connection with the manufacturer of such faucets and fittings can and should be reduced or eliminated in order to protect human health, the Administrator shall issue such regulations as may be necessary to require such reduction or elimination.

(2) Regulations issued pursuant to paragraph (1) shall not take effect until after the expiration of a 90-day period following the date on which the report required by subsection (b) is submitted to the Congress.

SEC. 103. LEADED GASOLINE BAN.

(a) Effective 60 days following the date of the enactment of this Act, the Administrator, by regulation, shall prohibit the selling or offering for sale, in a metropolitan statistical area or consolidated metropolitan statistical area (as defined by the United States Office of Management and Budget) with a 1980 population of 250,000 persons or more, for use as a fuel in any motor vehicle, any gasoline which contains lead or a lead additive.

(b) Effective 24 months following the date of the enactment of this Act, the Administrator, by regulation, shall prohibit the selling, offering for sale, or introduction into commerce, for use as a fuel in any motor vehicle, any gasoline which contains lead or a lead additive.

(c) For purposes of this section, the term "motor vehicle" means any self-propelled vehicle designed for transporting persons or property on a street or highway, except that such term shall not include farm combines, tractors, and other off-road vehicles used for agricultural purposes.

SEC. 104. LEAD STORAGE BATTERIES RECYCLING PROGRAM.

(a) Prior to the expiration of the 180-day period following the date of the enactment of this Act, the Administrator shall establish, by regulation, a program to encourage the several States to establish and implement programs to foster the recycling of lead storage batteries.

(b) The Administrator shall establish such program to encourage and assist State programs which would focus on the recycling of all lead storage batteries within the jurisdiction of such programs.

(c)(1) Any program established by the Administrator pursuant to this section shall require the Administrator to impose and collect, from the manufacturer or importer of each lead storage battery, a fee for each such battery sold by the manufacturer or imported by the importer. Such fee shall not exceed 5 cents per pound of lead in each such battery. No fee shall be collected pursuant to this section after the expiration of the 42-month period following the date of the enactment of this Act.

(2) There is established in the Treasury of the United States an account to be known as the "Lead Contaminant Reduction Account", which shall consist of all fees collected by the Administrator pursuant to this section. Moneys in the account shall be available, in such amounts as are hereafter provided for in appropriation Acts, to the Administrator for the purpose of carrying out the provisions of this Act.

(d)(1) Subject to the availability of funds from the account established by subsection (c), the Administrator is authorized to make grants to any State for the purpose of assisting such State in developing and carrying out a program for the recycling of lead storage batteries in accordance with this Act.

(2) Applications for grants under this subsection shall be in such form and require such information as the Administrator shall prescribe.

(3) Grants under this subsection shall be in such amounts, and subject to such conditions, as the Administrator shall prescribe.

(4) Each State shall submit an annual report to the Administrator setting forth how all moneys from grants pursuant to this subsection were expended during the 12-month period preceding the date of the submission of such report.

(e) There are authorized to be appropriated from the account established by this section such sums, not to exceed

$35,000,000 in fiscal year 1991, $40,000,000 in fiscal year 1992, and $45,000,000 in fiscal year 1993, as may be necessary to make grants under this section. Moneys remaining in the account on the date of termination of the provisions of this Act shall be returned to the general revenues of the Treasury.

SEC. 105. LEAD IN FOOD PROCESSING AND CANS.

Prior to the expiration of the 12-month period following the date of the enactment of this Act, the Administrator, by regulation, shall prohibit the use in food processing and marketing of containers with leaded solder seams, and the use of lead in chemical compounds applied to foods.

SEC. 106. LEAD IN COSMETICS.

Prior to the expiration of the 12-month period following the date of the enactment of this Act, the Administrator, by regulation, shall prohibit the use of lead in the manufacturing of cosmetics, including hair sprays and hair coloring.

SEC. 107. STANDARDS AND TESTING OF LEAD IN CERAMIC WARE.

(a) Prior to the expiration of the 12-month period following the date of the enactment of this Act, the Administrator, by regulation, shall establish such standards and testing procedures with respect to lead in ceramic ware as may be necessary to protect public health.

(b) Prior to the expiration of the 15-month period following the date of the enactment of this Act, the Administrator shall report to the Congress with respect to the standards and procedures established pursuant to this section.

SEC. 108. LEAD PAINT REMOVAL.

(a) The Administrator is authorized to conduct, or cause to be conducted, research for the purpose of developing strategies to reduce the risk of contamination from lead paint in housing and technology which will accelerate the process of lead paint removal in a safe, cost-effective, and efficient manner.

(b) In carrying out such research, the Administrator is authorized, in such amounts as are hereafter provided in appropriation Acts, to enter into contracts or other agreements.

(c) There are authorized to be appropriated from the account established by section 104 such sums, not to exceed $9,000,000 in fiscal year 1991, $10,000,000 in fiscal year 1992, and $11,000,000 in fiscal year 1993, as may be necessary to carry out the provisions of this section.

TITLE II—LEAD IN PACKAGING AND PACKAGING COMPONENTS

SEC. 201. LEAD REDUCTION IN THE WASTE STREAM.

(a) The Congress finds and declares that—

(1) the management of solid waste can pose a wide range of hazards to public health and safety and to the environment;

(2) packaging comprises a significant percentage of the overall solid waste stream;

(3) the presence of heavy metals in packaging is a small part of the total concern in light of their likely presence in emissions or ash when packaging is incinerated, or in leachate when packaging is landfilled;

(4) lead, on the basis of available scientific and medical evidence, is of particular concern; and

(5) it is desirable as a first step in reducing the toxicity of packaging waste to eliminate the addition of lead to packaging.

SEC. 202. DEFINITIONS.

As used in this title, the term—

(1) "package" means a container providing a means of marketing, protecting, or handling a product, and includes a unit package, an intermediate package, unsealed receptacles such as carrying cases, crates, cups, pails, rigid foil, and such other trays, wrappers and wrapping films, bags, tubs, and shipping or other containers, as the Administrator, by regulation, may define;

(2) "distributor" means any individual, firm, corporation, or other entity who or which takes title to goods purchased for resale;

(3) "packaging component" means any individual assembled part of a package such as, but not limited to, any interior or exterior blocking, bracing, cushioning, weatherproofing, exterior strapping, coatings, closures, inks, and labels.

SEC. 203. PROHIBITIONS.

(a) No package or packaging component shall be offered for sale or for promotional purposes by its manufacturer or distributor, which includes, in the package itself, or in any packaging component, inks, dyes, pigments, adhesives, stabilizers, or other additive to which any lead has been intentionally introduced as an element during manufacturing or distribution as opposed to the incidental presence of lead.

(b) No product shall be offered for sale or for promotional purposes by its manufacturer or distributor in a package which includes, in the package itself or in any of its packaging components, inks, dyes, pigments, adhesives, stabilizers, or other additive to which any lead has been intentionally introduced as an element during manufacturing or distribution as opposed to the incidental presence of lead.

(c) Notwithstanding subsection (a) of this section, the aggregate of the concentration levels, from any incidental presence of lead present in any package or packaging component shall not exceed the following:

(1) for the second 12-month period following the date of the enactment of this Act, 600 parts per million by weight (0.06 percent);

(2) for the third 12-month period following such date of enactment, 250 parts per million by weight (0.025 percent);

(3) for the fourth 12-month period following such date of enactment, 100 parts per million by weight (0.01 percent); and

(4) for each 12-month period thereafter, 1 part per million by weight (0.0001 percent).

(d) No package or packaging component shall be offered for sale or for promotional purposes by its manufacturer or distributor, and no product shall be offered for sale or for promotional purposes by its manufacturer or distributor in a package, if such package or packaging component exceeds the level provided under subsection (c) of this section.

SEC. 204. CERTIFICATE OF COMPLIANCE.

(a) A certificate of compliance stating that a package or packaging component is in compliance with the requirements of this Act shall be furnished by its manufacturer or distributor to the purchaser or intended purchaser of the package or packaging component.

(b) In any case in which compliance is achieved because of an exemption under section 303, such certificate shall state the specific basis upon the exemption is claimed.

(c) A certificate of compliance shall be signed by an authorized official of the manufacturer or distributor, as the case may be.

(d) The purchaser shall retain the certificate of compliance for as long as the package or packaging component is in use, a copy of such certificate shall be kept on file by the manufacturer or distributor of the package or packaging component.

TITLE III—MISCELLANEOUS

SEC. 301. REPORT.

(a) The Administrator shall report to the Congress with respect to the effectiveness of this Act prior to the expiration of the 36-month period following the date of its enactment. Such report shall be submitted prior to the expiration of the 24-month period following such effective date.

(b) Such report may include the views and recommendations of the Administrator as to whether or not the sale or distribution of packaging or packaging components containing other toxic substances should be prohibited in order to further reduce the toxicity of packaging waste, and whether or not the provisions of section 303 should be modified or repealed.

SEC. 302. ENFORCEMENT.

(a) Any person who violates a regulation issued pursuant to section 101, 102(c), 103, 104, 105, 106, 107, or 204 shall be subject to a civil penalty of not more than $25,000 for each such violation.

(b) Any person who violates the provisions of section 203 shall be subject to a civil penalty of not more than $50,000 for each such violation.

(c) The Administrator may commence a civil action to assess and recover any civil penalty prescribed in subsection (a) or (b) of this section. Any action under this subsection may be brought in the district court of the United States for the district in which the violation is alleged to have occurred or in which the defendant resides or has his principal place of business, and such court shall have jurisdiction to assess such civil penalty. In determining the amount of any civil penalty to be assessed under this subsection, the court shall consider the seriousness of the violation, the economic benefit or savings (if any) resulting from the violation, the size of the violator's business, the violator's history of compliance with this title, any good faith efforts to comply with the applicable requirements, the economic impact of the penalty on the violator, and such other matters as justice may require. In any such action, subpoenas for witnesses who are required to attend a district court in any district may run into any other district.

SEC. 303. EXEMPTIONS.

(a) The Administrator may exempt the following from the provisions of this Act—

(1) a package or packaging component manufactured prior to the effective date of section 203 of this Act, and displaying a code, prescribed by the Administrator, indicating that such package or component was manufactured prior to such date; and

(2) a package or packaging component to which lead has been added in the manufacturing, forming, printing, or distribution process in order to comply with health or safety requirements of Federal law.

(b)(1) No such exemption shall be made under this section except pursuant to an application to the Administrator submitted in such form and containing such information as he shall prescribe.

(2) No exemption shall be granted pursuant to paragraph (3) of subsection (a) after the expiration of the 48-month period following the date of the enactment of this Act.

SEC. 304. EFFECTIVE DATES.

The provisions of section 203 of this Act shall take effect upon the expiration of the 12-month period following the date of the enactment of this Act. All other provisions of this Act shall take effect upon the date of its enactment.

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II

101st CONGRESS
2d Session

S. 2637

To amend the Toxic Substances Control Act to reduce the levels of lead in the environment, and for other purposes.

IN THE SENATE OF THE UNITED STATES

May 16 (legislative day, April 18), 1990

Mr. Reid (for himself, Mr. Lieberman, Mr. Bradley, and Mr. Moynihan) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To amend the Toxic Substances Control Act to reduce the levels of lead in the environment, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION. 1. SHORT TITLE.

This Act may be cited as the "Lead Exposure Reduction Act of 1990".

SEC. 2. AMENDMENT OF THE TOXIC SUBSTANCES CONTROL ACT.

(a) Amendment of the Toxic Substances Control Act.—The Toxic Substances Control Act (15 U.S.C.

★(Star Print)

2601 et seq.) is amended by adding after title III the following new title:

"TITLE IV—LEAD EXPOSURE REDUCTION

"SEC. 401. FINDINGS AND POLICY.

"(a) FINDINGS.—The Congress finds that—

"(1) lead poisoning is the most prevalent disease of environmental origin among American children today, and children under 7 years of age are at special risk because of their susceptibility to the potency of lead as a neurologic toxin;

"(2) at exposure levels that are commonly experienced, the effects of lead on children include permanent, significant neurologic impairment, and additional health effects occur in adults exposed to similar exposure levels;

"(3) because of the practical difficulties of removing lead already dispersed into the environment, children and adults will continue to be exposed to such lead for years;

"(4) as a result of decades of highly dispersive uses of lead in a variety of products, contamination of the environment with unacceptable levels of lead is widespread;

"(5) the continued manufacture, import, processing, use, and disposal of lead-containing products causes further releases of lead to the environment, and such releases contribute to further environmental contamination and resultant exposure to lead; and

"(6) methods to reduce existing lead exposure levels must be improved, especially through the development of more effective and affordable methods for abating lead-based paint, which continues to be a major cause of childhood lead poisoning.

"(b) POLICY.—It is the policy of the United States that further releases of lead to the environment should be minimized, and means should be developed and implemented to reduce exposures to existing sources of environmentally dispersed lead.

"SEC. 402. RESTRICTIONS ON CONTINUING USES OF CERTAIN LEAD-CONTAINING PRODUCTS.

"(a) GENERAL RESTRICTIONS.—Except as provided under subsections (b), (c), and (d) of this section, beginning on the date that is 1 year after the date of the enactment of the Lead Exposure Reduction Act of 1990, no person may manufacture, process, or distribute in commerce any of the following product categories:

"(1) Paint containing more than 0.06 percent lead by dry weight.

"(2) Solder containing more than 0.1 percent lead by dry weight.

"(3) Plastic additives, printing inks, or pigments containing more than 0.06 percent lead by dry weight.

"(4) Plumbing fittings containing more than 2 percent lead by dry weight.

"(5) Pesticides (as defined in section 2(u) of the Federal Insecticide, Rodenticide, and Fungicide Act (7 U.S.C. 136(u)) containing more than 0.1 percent lead by dry weight.

"(6) Construction materials (including roofing, siding, and soundproofing materials) containing more than 0.1 percent lead by dry weight.

"(7) Fertilizers containing more than 0.1 percent lead by dry weight.

"(8) Glazes, enamels, and frits containing more than 0.06 percent lead by dry weight.

"(9) Toy and recreational game pieces containing more than 0.1 percent lead by dry weight.

"(10) Curtain weights containing more then 0.1 percent lead by dry weight.

"(11) Fishing weights containing more than 0.1 percent lead by dry weight.

"(12) Stained-glass came containing more than 0.1 percent lead by dry weight.

"(13) Foils for wine bottles containing more than 0.1 percent lead by dry weight.

"(b) MODIFICATION OF RESTRICTIONS.—(1) The Administrator may, after public notice and opportunity for comment, promulgate regulations to modify, pursuant to paragraphs (2) and (3) of this subsection, the percentage of the allowable lead content for a product category described in paragraphs (1) through (13) of subsection (a).

"(2) The Administrator may, pursuant to paragraph (1), establish by regulation a percentage of the allowable lead content that is less than the percentage specified under subsection (a) for any product category described in paragraphs (1) through (13) of such subsection if the Administrator determines that a reduction in the percentage of allowable lead content is necessary to protect human health or the environment.

"(3)(A) The Administrator may, pursuant to paragraph (1), establish by regulation a percentage by dry weight of the allowable lead content for a product category described in paragraphs (1) through (13) of subsection (a) that is greater than the percentage specified for the product category under such subsection if the Administrator determines that—

"(i) increasing the percentage of the allowable lead content for the product category will promote the protection of human health and the environment; and "(ii) no comparable substitute is available at the time of the promulgation of such regulation.

"(B) If the Administrator establishes by regulation an increased percentage of the allowable lead content for a product category pursuant to this paragraph, the regulation establishing such percentage shall terminate on the date that is 3 years after the date such regulation becomes final.

"(c) STATEMENTS BY ADMINISTRATOR RELATING TO MODIFICATIONS OF RESTRICTIONS.—In promulgating any regulation under subsection (b) or (d) of this section with respect to the allowable lead content under a product category, the Administrator shall, prior to the promulgation of a final regulation, consider and publish a statement with respect to—

"(1) the effects of the proposed allowable lead content level for the product category on human health and the magnitude of the exposure of human beings to such lead content; and

"(2) the effects of the proposed allowable lead content level for the product category and the magnitude of the exposure of the environment to such proposed allowable lead content level for the product category.

"(d) REVIEW OF INVENTORIED PRODUCTS.—(1) Not later than 18 months after the date of the enactment of the

Lead Exposure Reduction Act of 1990, the Administrator shall review the products identified in the compilation of inventory information described in section 403(b), and identify the percentages of lead used in such products.

"(2) Upon completion of the review under paragraph (1), if the Administrator determines that a reduction in the percentage of the allowable lead content for a product category is necessary to protect human health or the environment, or that a comparable substitute product for a product category is available at the time of completion of the review, the Administrator shall promulgate a regulation to reduce the percentage of the allowable lead content for such category, or to prohibit any lead content in the product category.

"(e) CANS FOR FOOD.—(1) Beginning on the date that is 6 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, no person may manufacture or import any can containing food for human consumption (or intended for such use) containing solder that has a lead content greater than 0.1 percent by dry weight.

"(2) Beginning on the date that is 18 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, no person may distribute in commerce any can containing food for human consumption (or intended for such use) containing solder that has a lead content greater than 0.1 percent by dry weight.

"(f) SALE OF GASOLINE.—Notwithstanding any other provision of law, beginning on the date that is 6 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, no person may offer for sale gasoline that contains any lead additives for a price that is less than the lowest price at which unleaded gasoline is offered for sale at the same establishment.

"SEC. 403. INVENTORY OF LEAD-CONTAINING PRODUCTS; EMISSIONS REPORTING REQUIREMENTS.

"(a) INVENTORY OF LEAD-CONTAINING PRODUCTS.—(1) Not later than 12 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, each person who manufactures, processes, or imports any product that contains more than 0.1 percent lead by dry weight shall notify the Administrator of such manufacture, processing, or importing. Such notification shall be in writing and shall specify the following inventory information:

"(A) the type of product manufactured, processed, or imported;

"(B) the quantity of such product manufactured, processed, or imported;

"(C) the amount of lead used in the manufacturing or processing of the product, or the amount of lead contained in the imported product; and

"(D) such other information as the Administrator may, by regulation, require.

"(2) Not later than 3 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, the Administrator shall publish in the Federal Register notice of the requirements under paragraph (1) of this subsection and other related information that the Administrator determines to be appropriate.

"(b) COMPILIATION OF INVENTORY INFORMATION.—Not than later 15 months after the date of enactment of the Lead Exposure Reduction Act of 1990, the Administrator shall publish a compilation of the inventory information reported under paragraph (1) of subsection (a). In compiling such information the Administrator may, to the extent consistent with the purpose of this section, in lieu of listing a product individually, list a category of products in which such product is included. The Administrator shall list such inventory information in such a manner as to ensure the protection of classified information and trade secrets and privileged or confidential commercial or financial information described in paragraphs (1) and (4), respectively, of section 552(b) of title 5, United States Code.

"(c) LEAD EMISSION REPORTS FROM CERTAIN FACILITIES.—(1) Beginning on the date that is 12 months after the date of the enactment of the Lead Exposure Reduction

Act of 1990, and annually thereafter, the owner or operator of any—

"(A) primary lead smelter or primary lead refiner (as defined by the Administrator);

"(B) secondary lead smelter (as defined in section 6(i)(2)) or secondary lead refiner; and

"(C) battery manufacturing operation (as defined by the Administrator),

shall report to the Administrator concerning emissions of lead to air, water, and land from each such facility.

"(2) The reports described in paragraph (1) shall—

"(A) be in such form as the Administrator shall require by regulation; and

"(B) be based on monitoring of point-source emissions and estimates of fugitive emissions.

"(3) Each smelter, refinery, or facility described in subparagraphs (A) through (C) shall, not later than 6 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, be equipped with emissions monitoring devices that meet requirements that the Administrator shall require by regulation.

"(4) Not more than 6 months after receiving the reports required under paragraph (1), the Administrator shall publish the emissions data in such reports.

"(5) Not later than 3 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, the Administrator shall publish in the Federal Register notice of the requirements of this subsection and other related information that the Administrator determines to be appropriate.

"(d) DEFINITIONS.—For the purposes of this section, the terms 'manufacture' and 'process' mean manufacture or process for commercial purposes (as defined in section 8(f)).

"SEC. 404 PRODUCT LABELING.

"(a) IN GENERAL.—(1) Not later than 12 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, each person who manufactures or imports any product that contains more than 0.1 percent lead by dry weight shall indicate on the product label the percentage of lead content in the product.

"(2) Not later than 3 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, the Administrator shall publish in the Federal Register notice of the requirements under paragraph (1) and other related information that the Administrator determines to be appropriate.

"(b) LABELING REGULATIONS.—Not later than 9 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, the Administrator shall promulgate regulations with respect to the wording, type size, and placement of the labels described in subsection (a).

"(c) INTERIM REQUIREMENTS.—If the promulgation of a final regulation with respect to a product described in subsection (a) is delayed beyond the date specified under subsection (b), then until such time as a final regulation is promulgated, a label shall be affixed to the product and shall contain the words 'Warning; Contains Lead' in letters the same size as the largest letter otherwise affixed to the label or packaging of the product.

"SEC. 405. MANUFACTURING OR PROCESSING NOTICES FOR NEW LEAD-CONTAINING PRODUCTS.

"(a) IN GENERAL.—(1) Beginning on the date that is 30 days after the date of the publication of the compilation of inventory information described in section 403(b), no person may manufacture or process a product that has a lead content of greater than 0.1 percent unless such product is described in the compilation of inventory information, or unless—

"(A) such person submits to the Administrator, not later than 120 days before commencing such manufacture or processing, a notice in the same manner as described in the requirements for a notice under section 5(d);

"(B) such person complies with any applicable requirements for the submission of test data described in section 5(b); and

"(C) the Administrator has determined that—

"(i) the manufacture, processing, use, and disposal of the product is not likely to contribute to the dispersion of lead into the environment; and

"(ii) no comparable product is available in commerce.

"(2) Not later than 15 days after the date of the enactment of the Lead Exposure Reduction Act of 1990, the Administrator shall publish in the Federal Register notice of the requirements of this subsection and other related information that the Administrator determines to be appropriate.

"(b) EFFECT OF FAILURE OF THE ADMINISTRATOR TO ISSUE A DETERMINATION.—The failure of the Administrator to issue a determination under paragraph (3) of subsection (a) within 60 days after receiving of the notice described in paragraph (1) of such subsection shall be deemed a denial of such a determination.

"SEC. 406. RECYCLING OF LEAD-ACID BATTERIES.

"(a) PROHIBITIONS.—(1) Beginning on the date that is 6 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, the placement of lead-acid batteries in any landfill and the incineration of such batteries are prohibited.

"(2) No person shall discard or otherwise dispose of a lead-acid battery in mixed municipal solid waste or discard or otherwise dispose any such battery in a manner other than by recycling in accordance with this subsection.

"(b) GENERAL DISCARD OR DISPOSAL REQUIREMENTS.—Beginning on the date that is 6 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, a person (except a person described in subsection (c), (d), or (e)) shall discard or otherwise dispose of used lead-acid batteries only by delivery to one of the following:

"(1) A person who sells lead-acid batteries at retail or wholesale.

"(2) A secondary lead smelter permitted by a State or the Administrator under the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.).

"(3) A collection or recycling facility permitted by a State or by the Administrator.

"(c) DISCARD OR DISPOSAL REQUIREMENTS FOR RETAILERS.— Beginning on the date that is 6 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, a person who sells lead-acid batteries at retail shall discard or otherwise dispose of used lead-acid batteries only by delivery to one of the following:

"(1) A person who sells lead-acid batteries at wholesale.

"(2) A secondary lead smelter permitted by a State or the Administrator under the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.).

"(3) A battery manufacturer.

"(4) A collection or recycling facility permitted by a State or by the Administrator.

"(d) DISCARD OR DISPOSAL REQUIREMENTS FOR WHOLESALERS.—Beginning on the date that is 6 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, a person who sells lead-acid batteries at wholesale shall discard or otherwise dispose of used lead-acid batteries only by delivery to one of the following:

"(1) A secondary lead smelter permitted by a State or the Administrator under the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.).

"(2) A battery manufacturer.

"(3) A collection or recycling facility permitted by a State or by the Administrator.

"(e) DISCARD OR DISPOSAL REQUIREMENTS FOR MANUFACTURERS.—Beginning on the date that is 6 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, a person who manufactures lead-acid batteries shall discard or otherwise dispose of used lead-acid batteries only by delivery to one of the following:

"(1) A secondary lead smelter permitted by a State or the Administrator under the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.).

"(2) A collection or recycling facility permitted by a State or by the Administrator.

"(f) COLLECTION REQUIREMENTS FOR RETAILERS.—Beginning on the date that is 6 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, a person who sells, or offers for sale, lead-acid batteries at retail shall accept from customers, if offered by customers, used lead-acid batteries of the same type as the batteries sold and in a quantity approximately equal to the number of batteries sold. The used lead-acid batteries shall be accepted at the place where lead-acid batteries are offered for sale.

"(g) COLLECTION REQUIREMENTS FOR WHOLESALERS.—(1) Beginning on the date that is 6 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, a person who sells, or offers for sale, lead-acid batteries at wholesale (hereinafter referred to as a 'wholesaler') shall accept from customers, if offered by customers, used lead-acid batteries of the same type as the batteries sold.

"(2) In the case of a wholesaler who sells, or offers for sale, lead-acid batteries to a retailer, such wholesaler shall also provide for removing used lead-acid batteries at the place of business of the retailer. Such removal shall occur not later than 90 days after the retailer notifies the wholesaler of the existence of such used lead-acid batteries for such removal.

"(h) COLLECTION REQUIREMENTS FOR MANUFACTURERS.—Beginning on the date that is 6 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, a person who manufactures lead-acid batteries shall accept from customers, if offered by customers, used lead-acid batteries of the same type as the batteries sold.

"(i) WRITTEN NOTICE REQUIREMENTS FOR RETAILERS.—(1) Beginning on the date that is 6 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, a person who sells, or offers for sale, lead acid-batteries at retail shall post written notice that—

"(A) is clearly visible in a public area of the establishment in which such lead-acid batteries are sold or offered for sale;

"(B) is at least 8½ inches by 11 inches in size; and

"(C) contains the following language:

"(i) 'It is illegal to throw away a motor vehicle battery or other lead-acid battery.'.

"(ii) 'Recycle your used batteries.'.

"(iii) 'Federal law requires battery retailers to accept used lead-acid batteries for recycling in exchange for new batteries purchased.'.

"(2) Any person who, after receiving a warning by the Administrator, fails to post a notice required under paragraph (1) shall be subject to a civil penalty of not more than $1,000 per day.

"(j) LEAD-ACID BATTERY LABELING REQUIREMENTS.—(1) Beginning on the date that is 6 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, it shall be unlawful to sell a lead-acid battery that does not bear a permanent label that states the following:

"(A) 'It is illegal to throw away a motor vehicle battery or other lead-acid battery.'.

"(B) 'Federal law requires battery retailers to accept used lead-acid batteries for recycling in exchange for new batteries purchased.'.

"(2) Not later than 3 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, the Administrator shall publish in the Federal Register notice of the requirements of this section and other related information that the Administrator determines to be appropriate.

"(k) PUBLICATION OF NOTICE.—Not later than 3 months after the date of the enactment of the Lead Exposure

Reduction Act of 1990, the Administrator shall publish in the Federal Register notice of the requirements of this section and other related information that the Administrator determines to be appropriate.

"(l) Deposits.—Nothing in this Act shall be construed to prohibit a government of a State or a political subdivision of a State from requiring the payment of a deposit upon the sale of a lead-acid battery.

"(m) Inspection.—The Administrator may inspect any establishment subject to this section and may issue warnings and citations to any person who fails to comply with any provision of this section.

"(n) Definitions.—For the purposes of this section:

"(1) The term 'lead-acid battery' means a battery that—

"(A) consists of lead and sulfuric acid;

"(B) is used as a power source; and

"(C) has a capacity of 6 volts or more.

"(2) The term 'secondary lead smelter' means a facility which produces metallic lead from various forms of lead scrip, including used lead-acid batteries. Such a facility also may produce plastic chips that are sent for reprocessing.

"SEC. 407. PROHIBITED ACTS, PENALTIES.

"(a) In General.—It shall be unlawful for any person to fail or refuse to comply with a provision of sections 402 through 406.

"(b) Civil Penalties.—(1) A person who violates a provision of section 402, 403, 404, 405 or 406 shall be liable to the United States for a civil penalty in an amount not to exceed $1,000 for each such violation. Each instance of violation shall constitute a separate violation, and each day a violation continues shall, for the purposes of this section, constitute a separate violation.

"(2) A civil penalty for a violation of this section shall be assessed, and an order assessing a civil penalty shall be issued according to the procedure described in section 16(a)(2) of this Act. A person assessed such a penalty may file a petition for judicial review in accordance with the procedures described in section 16(a)(3). If a person fails to pay an assessment of a civil penalty the Attorney General may recover the amount assessed under the procedures described in section 16(a)(4).

"(c) Criminal Penalties.—Any person who knowingly or wilfully violates any provision of this section, shall, in addition to or in lieu of any civil penalty which may be imposed under subsection (b) for such violation, be subject, upon conviction, to a fine of not more than $25,000 for each such violation, or to imprisonment for not more than one year, or both.

"SEC. 408. LEAD ABATEMENT AND MEASUREMENT.

"(a) PROGRAM TO PROMOTE LEAD EXPOSURE ABATEMENT.—The Administrator, in cooperation with the Secretary of Housing and Urban Development, the Secretary of Commerce, and the Secretary of Health and Human Services, shall undertake a comprehensive program to promote safe, effective, and affordable monitoring, detection and abatement of lead-based paint and other lead exposure hazards. Such program shall, at a minimum, include the components described in subsections (b) through (k) of this section.

"(b) STANDARDS FOR ENVIRONMENTAL SAMPLING LABORATORIES.—In consultation with the Secretary of Commerce (acting through the Director of the National Institute of Standards and Technology), the Administrator shall establish protocols, criteria and minimum performance standards for laboratory analysis of lead in paint films, soil and dust. Not more than 18 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, the Administrator shall establish certification programs to assure the quality and consistency of laboratory analyses, unless the Administrator determines, by the date specified in this subsection, that effective voluntary accreditation programs are in place and operating on a nationwide basis at the time of such determination.

"(c) STANDARDS FOR BLOOD ANALYSIS LABORATORIES.—(1) In consultation with the Secretary of Health and Human Services, acting through the Director of the Centers for Disease Control, the Administrator shall establish protocols, criteria and minimum performance standards for laboratory analysis of lead in blood. Not later than 18 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, the Administrator shall establish certification programs to assure the quality and consistency of laboratory analyses, unless the Administrator determines, by the date specified in this subsection, that effective voluntary accreditation programs are in place and operating on a nationwide basis at the time of such determination.

"(2) An accreditation or certification program under this subsection shall include provisions for reporting results of blood-lead analyses to the Administrator and to the Director of the Centers for Disease Control on an ongoing basis, in such form as the Administrator shall require by regulation.

"(d) CONTRACTOR TRAINING AND CERTIFICATION.—(1) Not later than 12 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, the Administrator in consultation with the Secretary of Housing and Urban Development and the Secretary of Health and Human

Services (acting through the Director of National Institute for Occupational Safety and Health), shall develop minimum core curricula for technical training courses for lead-based paint abatement workers, supervisors, designers, inspectors and building owners.

"(2) The courses described in paragraph (1) shall address generic factors associated with lead testing and abatement in various types of housing units, including public and private single and multi-family, housing units (as determined by the Administrator, in consultation with the individuals described in paragraph (1)).

"(3) The Administrator shall assure the quality and comprehensiveness, and effectiveness of the training courses described in paragraph (2) by evaluating training programs, and shall encourage State certification programs, or the development of national proficiency tests.

"(4) Not later than April 1, 1992, the Administrator and the Secretary of Housing and Urban Development shall jointly report to the Congress their assessment of abatement training capacity and the quality of ongoing abatement work.

"(e) DETECTION TECHNOLOGIES.—(1) In consultation with the Secretary of Housing and Urban Development and the Secretary of Commerce (acting through the Director of the National Institute of Standards and Technology), the Administrator shall evaluate emerging products and emerging techniques (as defined by the Administrator) for detecting lead in paint films and dust, including x-ray fluorescence devices, on-site chemical spot testers, and laboratory methods.

"(2) In consultation with the Secretary of Housing and Urban Development and the Secretary of Commerce (acting through the Director of the National Institute of Standards and Technology), the Administrator shall develop criteria, standards, and testing protocol to assure reliable, accurate and effective detection technologies.

"(f) EVALUATION OF ABATEMENT AND IN-PLACE MANAGEMENT TECHNIQUES TO REDUCE LEAD DUST LEVELS.—(1) Not later than 36 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, the Administrator, in consultation with the Secretary of the Department of Housing and Urban Development, shall submit a report to the Congress concerning the short-term and long-term efficacy and effectiveness of various abatement and in-place management techniques in reducing lead dust levels. The assessment of such in-place management techniques shall be based on resultant and subsequent levels of lead dust.

"(2) The report described in paragraph (1) shall review the cost effectiveness and reasonableness of State standards for post-abatement lead dust levels in effect immediately preceding the date of the issuance of such report.

"(g) EVALUATION OF EMERGING ABATEMENT TECHNOLOGIES.—(1) In consultation with the Secretary of Housing and Urban Development and the Secretary of Commerce (acting through the Director of the National Institute of Standards and Technology), the Administrator shall establish a program for the evaluation of existing and new products and procedures for encapsulating or removing lead-based paint.

"(2) The products and procedures described in paragraph (1) shall be evaluated for safety, effectiveness, durability, and other relevant performance characteristics (as determined by the Administrator, in consultation with the individuals described in paragraph (1)) and based on written performance criteria and standards that the Administrator shall develop (in consultation with the individuals described in paragraph (1)).

"(3) Not later than 18 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, the Administrator shall publish in the Federal Register a list of the products and procedures that the Administrator has determined to meet the performance standards and criteria developed by the Administrator.

"(4) The Administrator shall update and publish the list described in paragraph (3)—

"(A) on the date that is 30 months after the date of the enactment of the Lead Exposure Reduction Act of 1990;

"(B) on the date that is 42 months after the date of the enactment of such Act; and

"(C) at any time subsequent to the date under subparagraph (B), as the Administrator determines to be appropriate.

"(h) CLASSIFICATION OF ABATEMENT WASTES.—(1) Not later than 6 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, the Administrator shall issue guidelines for the management of lead-based paint abatement debris. Such guidelines shall describe steps for segregating wastes from lead-based paint abatement projects in order to minimize the volume of material qualifying as hazardous solid waste.

"(2) Beginning on the date that is 7 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, if the requirements of paragraph (1) have not been met, no appropriated monies may be expended by the Environmental Protection Agency for the purpose of funding travel for employees to engage in official business of the Environmental Protection Agency outside of the United States and the Territories of the United States. The prohibition under this paragraph shall terminate on the date that the requirements of paragraph (1) are met.

"(i) EXPOSURE STUDY.—(1) In consultation with the Secretary of Health and Human Services (acting through the Director of the Centers for Disease Control), the Administrator shall undertake a long-term research project to study the sources of lead exposure in children who have elevated blood lead levels (or other indicators of elevated lead body burden), as defined by the Centers for Disease Control.

"(2) The research project described in paragraph (1) shall examine the relative contributions to lead body burden from the following:

"(A) Drinking water.

"(B) Food.

"(C) Lead-based paint and dust from lead-based paint.

"(D) Exterior sources such as ambient air and lead in soil.

"(3) Not later than 18 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, and every 12 months thereafter, the Administrator shall submit a report to the Congress concerning the research project described in paragraph (1).

"(j) PUBLIC EDUCATION.—(1) The Administrator, in consultation with the Secretary of Housing and Urban Development and the Secretary of Health and Human Services, shall sponsor public education and outreach activities to increase public awareness of—

"(A) the scope and severity of lead poisoning from household sources;

"(B) the need for careful, quality, abatement and management actions.

"(2) The activities described in paragraph (1) shall be designed to provide educational services and information to—

"(A) health professionals;

"(B) other groups that the Administrator, in consultation with the individuals described in paragraph (1) determines to be appropriate; and

"(C) the general public.

"(k) SOIL LEAD GUDELINES.—Not later than 18 months after the date of the enactment of the Lead Exposure Reduction Act of 1990, the Administrator shall issue guidelines concerning the action levels for lead in soil, at which appropriate action (as required by regulations that the Administrator shall promulgate) must be taken.

"(l) COORDINATOR FOR LEAD ACTIVITIES.—Not later than 30 days after the date of the enactment of the Lead Exposure Reduction Act of 1990, the Administrator shall appoint, from among the employees of the Office of the Administrator in the Environmental Protection Agency, a Coordinator for Lead Activities to coordinate the activities conducted by the Agency (or in conjunction with the Agency) relating to the prevention of lead poisoning, the reduction of lead exposure, and lead abatement.

"SEC. 409. ESTABLISHMENT OF NATIONAL CENTERS FOR THE PREVENTION OF LEAD POISONING.

"(a) ESTABLISHMENT AND RESPONSIBILITIES.—(1) There is established a grant program to establish one or more Centers for the Prevention of Lead Poisoning. (Each such Center is hereinafter referred to as a 'Center').

"(2) The Administrator shall award grants to one or more institutions of higher education in the United States for the purpose of establishing and funding a Center. Each such Center shall assist the Administrator in carrying out the functions of this title.

"(b) APPLICATIONS.—The head of any institution of higher education in the United States may submit to the Administrator an application to be designated as a site of a Center. The application shall be in such form and containing such information as the Administrator may require by regulation.

"(c) SELECTION CRITERIA.—The Administrator shall select grant recipients from the applicants in accordance with the following criteria:

"(1) The capability of the applicant institution to provide leadership in making national contributions to the prevention of lead poisoning.

"(2) The demonstrated capacity of applicant institution to conduct relevant research.

"(3) The appropriateness of the projects proposed to be carried out by the applicant institution.

"(4) The assurance of the applicant institution of a commitment of at least $100,000 in budgeted institutional funds to relevant research upon receipt of such grant.

"(5) The presence at the applicant institution of an interdisciplinary staff with demonstrated expertise in lead poisoning prevention.

"(6) The demonstrated ability of the applicant institution to disseminate results of relevant research and educational programs through an interdisciplinary continuing education program.

"(d) FEDERAL SHARE.—The Federal share of a grant under this section shall not exceed 80 percent of the costs of establishing and operating a Center and related research activities carried out by the Center.".

(b) TECHNICAL AMENDMENTS.—The Toxic Substances Control Act (15 U.S.C. 2601 et seq.) is amended by adding at the end of the table of contents in section 1 the following:

"TITLE IV—LEAD EXPOSURE REDUCTION

"Sec. 401. Findings and policy.
"Sec. 402. Restrictions on continuing uses of certain lead-containing products.
"Sec. 403. Inventory of lead-containing products.
"Sec. 404. Product liability.
"Sec. 405. Manufacturing or processing notices for new lead-containing products.
"Sec. 406. Recycling of lead-acid batteries.
"Sec. 407. Prohibited acts; penalties.
"Sec. 408. Lead abatement and measurement.
"Sec. 409. Establishment of national centers for the prevention of lead poisoning.".

SEC. 3. REPORTING OF BLOOD-LEAD LEVELS; BLOOD LEAD LABORATORY REFERENCE PROJECT.

(a) REPORTING OF BLOOD-LEAD LEVELS.—(1) The Secretary of Health and Human Services (hereafter in this section referred to as the "Secretary"), acting through the Director of the Centers for Disease Control (hereafter in this section referred to as the "Director"), shall encourage State public health officials to report blood-lead measurements to the Director.

(2) Not later than 18 months after the date of the enactment of this Act, the Secretary shall submit a report to the Congress that—

(A) describes the status of blood-lead reporting; and

(B) evaluates the feasibility and desirability of instituting a national requirement for mandatory preschool blood-lead screening.

(3) Not later than 24 months after the date of the enactment of this Act, the Secretary, in consultation with the Administrator of the Environmental Protection Agency, shall

submit a report to the Congress that assesses the effectiveness of the blood-lead reporting provisions under regulations establishing the accreditation and certification programs for blood analysis laboratories described in section 408(c) of the Toxic Substances Control Act, as added by this Act.

(c) ESTABLISHMENT OF BLOOD-LEAD LABORATORY REFERENCE PROJECT.—Subpart 2 of part C of title IV the Public Health Service Act (42 U.S.C. 258b et seq.), is amended by adding at the end thereof the following new section:

"SEC. 424. BLOOD-LEAD LABORATORY REFERENCE PROJECT.

"The Secretary of Health and Human Services acting through the Director of the Centers for Disease Control, shall establish a blood-lead laboratory reference project to assist States and local governments to establish, maintain, improve, and assure the quality of laboratory measurements performed for childhood lead poisoning prevention programs. Such project shall include—

"(1) collaboration with manufacturers of analytical instruments to develop blood lead measurement devices that are accurate, portable, precise, rugged, reliable, safe, and of reasonable cost;

"(2) the development of improved techniques for safe, contamination-free blood sample collection; and

"(3) assistance to State and local laboratories in the form of reference materials, equipment, supplies, training, consultation, and technology development for quality assurance, capacity expansion, and technology transfer.".

SEC. 4. REVISED NATIONAL AMBIENT AIR QUALITY STANDARD FOR LEAD.

Section 109 of the Clean Air Act (42 U.S.C. 7409), is amended by adding at the end thereof the following new subsection:

"(e) REVISED NATIONAL AMBIENT AIR QUALITY STANDARD FOR LEAD.—If the Administrator does not promulgate a revised national ambient air quality standard for lead pursuant to subsection (d) of this section on or before the date that is 12 months after the date of enactment of the Lead Exposure Reduction Act of 1990, the revised national ambient air quality standard for lead shall be 0.5 micrograms per cubic meter over a quarterly averaging period. Such standard may subsequently be revised by the Administrator by regulation.".

SEC. 5. REVISED NATIONAL PRIMARY DRINKING WATER REGULATION FOR LEAD.

Section 1412 of the Safe Drinking Water Act, (42 U.S.C. 300g–1) is amended by adding at the end thereof the following new subsection:

"(f) **Revised National Primary Drinking Water Regulation for Lead.**— If, on or before the date that is 12 months after the date of the promulgation of the Lead Exposure Reduction Act of 1990, the Administrator does not promulgate under this section a revised national primary drinking water regulation for lead that includes a maximum contaminant levels measured at the end-user's tap, a revised national primary drinking water regulation for lead shall be promulgated to—

"(1) include a maximum contaminant level of 5 micrograms per liter measured at the end-user's tap; and

"(2) require quarterly monitoring of lead at end-users' taps pursuant to guidelines issued by the Administrator. Such standard may subsequently be revised by the Administrator by regulation.".

SEC. 6. UPDATE OF 1988 REPORT TO CONGRESS ON CHILDHOOD LEAD POISONING.

(a) **In General.**— Not later than 12 months after the date of the enactment of this Act, and every 24 months thereafter, the Administrator of the Agency for Toxic Substances and Disease Registry shall submit to Congress a report updating the report submitted pursuant to subsection (f)(1) of section 118 of the Superfund Amendments and Reauthorization Act of 1986. Such updated report shall include, at a minimum, revised estimates of the prevalence of elevated lead levels among children in the population of the United States.

(b) FUNDING.—The costs of preparing and submitting such updates shall be borne by the Hazardous Substance Superfund established under subchapter A of chapter 98 of the Internal Revenue Code of 1986.

SEC. 7. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to carry out the purposes of this Act—

(1) $25,000,000 for fiscal year 1991;

(2) $24,000,000 for fiscal year 1992;

(3) $24,000,000 for fiscal year 1993; and

(4) $22,000,000 for fiscal year 1994.

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